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Problem Gambling as a Response to Social and Occupational Stressors: Exploring a Moderation Model of Stress and Coping

Phoenix Gillis
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by
Phoenix Gillis

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Author's Declaration of Originality

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Abstract

The current study explored specific stressors (loneliness and job stress) and coping strategies (problem-focused, emotional approach, avoidance, and religious coping) as predictors of outcomes relevant to problem gambling (problem gambling symptoms, gambling behaviours, and depressive symptoms). A sample of 217 frequent gamblers was recruited (a) using online advertisements (i.e., on classified sites, search engines, and Facebook); (b) using paper advertisements posted at problem gambling treatment centres; and (c) through a university student participant pool. Participants completed an online survey, which included an online version of the Gambling Timeline Followback (G-TLFB; Weinstock, Whelan, & Meyers, 2004). Six multiple regression analyses were conducted to explore the main and interactive effects of stress and coping variables on outcomes in the context of Wills' stress-coping model of addictive behaviour (Wills & Hirky, 1996; Wills & Shiffman, 1985). Generally consistent with previous reports, loneliness, job stress, and avoidance coping predicted higher levels of the outcomes, whereas problem-focused coping with job stress predicted fewer problem gambling and depressive symptoms. Emotional approach coping (EAC) and religious coping were introduced to the problem gambling literature in this study. EAC predicted lower levels of the outcomes when used in response to job stress, and it attenuated the relationship between loneliness and problem gambling when used in response to loneliness. Meanwhile, among individuals who endorsed some positive religious coping with loneliness, higher levels of this variable predicted more depressive symptoms. Negative religious coping in response to loneliness or job stress generally predicted higher levels of all three outcome variables, although endorsement of some negative religious coping

with loneliness attenuated the relationship between loneliness and depressive symptoms. These results suggest a number of promising avenues for future research, particularly regarding the implications of emotional approach and negative religious coping for problem gambling. The present study introduced new coping variables to the literature and built on previous findings of bivariate correlations between coping and problem gambling by exploring these relationships in a multivariate context.

Acknowledgments

I would like to extend my appreciation to my advisor, Dr. Ben Kuo, for his helpful support, advice, and encouragement throughout this process. My committee members as well as Dennis Jackson have also provided invaluable insights throughout this process. Numerous other professionals who have provided helpful advice along the way deserve mention as well, including David Jones, Liz Birchall, Dallas Smith, Jamie Weibe, Robert Williams, and Ray Reshke. Additionally, a huge thanks goes out to Sherri Simpson, who devoted incredible time and energy to assisting with the programming of my online survey.

Finally, I would like to thank my wonderful friends and family across the country for their support throughout this project. Now that I am finished, I hope that they will be a much bigger part of my life.

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CHAPTER I

Introduction

Research evidence suggests that between 70-90% of individuals engage in gambling activities at some point in their lives (Ladouceur, 1991). While most are able to do so without significant negative consequences, some gamble excessively, leading to financial, emotional, and social difficulties (American Psychiatric Association, 2000). A summary of literature published between 2000 and 2005 estimates the 12-month prevalence of problem gambling at 3.0% - 3.3% across English-speaking countries worldwide (Stucki & Rihs-Middel, 2007). A more recent survey placed this estimate at 3.2% for the Canadian population (Wood & Williams, 2009). Due to the tremendous personal and social costs of this disorder, researchers have endeavored to identify factors that contribute to the onset and exacerbation of excessive gambling.

Over the last two decades, stress and coping have emerged as key contributors to gambling pathology (Elman, Tschibelu, & Borsook, 2010; Friedland, Keinan, & Ragey, 1992). Indeed, gambling behaviours may function like psychoactive substances, providing an escape from aversive emotional responses to stressors (Beaudoin & Cox, 1999; Wood & Griffiths, 2007). In addition, a number of authors have suggested that problem gamblers are particularly vulnerable to stress because they lack alternative, adaptive coping skills (Jacobs, 1986; McCormick, 1994). Three coping variables have received particular attention in this regard: (a) problem-focused coping, defined as “the management or alteration of the person-environment relationship that is the source of stress” (Folkman & Lazarus, 1980, p. 223); (b) emotion-focused coping, defined as “the regulation of stressful emotions" (Folkman & Lazarus, 1980, p. 223); and (c) avoidance

coping, defined as “attempts to avoid actively confronting the problem…or to indirectly reduce emotional tension" (Billings & Moos, 1981, p. 141). With some mixed results, studies have shown that problem-focused coping is negatively correlated with problem gambling. Meanwhile, both emotion-focused and avoidance coping have shown robust positive associations with problem gambling.

Although these studies have provided general information regarding the links between stress, coping, and problem gambling, crucial methodological limitations have constrained the practical applications of these results. The primary issue is that the findings from coping studies have been too general to inform clinical practice, largely due to limitations in the conceptualization and measurement of variables. For instance, previous investigations have typically assessed dispositional coping styles (i.e., assessing reported use of general coping habits), which may have little bearing on the effectiveness of coping in response to real life stressors (see Coyne & Racioppo, 2000). Further, these studies have repeatedly focused on the same three general coping methods using the same global measures of life stress, resulting in a degree of stagnation in this area. Moreover, conclusions drawn from studies using such general measures tend to be very broad, and thus clinical implications of these findings are unclear (Coyne & Racioppo, 2000). To advance research in this area, investigators need to identify more specific stress-coping processes that have the capacity to inform clinical practice.

A second limitation of the extant literature on coping and problem gambling relates to the simplistic conceptual and statistical models employed. Specifically, previous studies have focused primarily on bivariate relationships between coping, stress, and problem gambling. The implications of this research are unclear, as significant

findings may be attributable to the effect of third variables. For instance, stress may influence both coping and problem gambling, creating a spurious association between the two variables (see Coyne & Racioppo, 2000). Furthermore, although coping variables are arguably best tested as moderators of the relationship between stress and outcomes (see Holmbeck, 1997), interaction effects have seldom been examined in the literature. To yield meaningful and clinically applicable results, it is essential to employ more comprehensive multivariate models when examining the relationships between stress, coping, and problem gambling.

The current study sought to explore the relationships between specific stress, coping, and outcome variables in the context of an established multivariate conceptual framework. The overarching objective of this project was to identify specific stress-coping processes for attention in future problem gambling research. Thus, Wills' stress-coping model of addictive behaviour (Wills & Hirky, 1996; Wills & Shiffman, 1985; see Figure 1) was adopted as the conceptual framework for the current study.

Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) hypothesizes both main and interactive effects of stress and coping on addictive behaviour. In Figure 1, main effects are represented by direct arrows from predictor variables to addictive behaviours; plus and minus signs indicate positive and negative contributions, respectively. Thus, stress is expected to have a positive main effect on addictive behaviours, as individuals often engage in these activities to escape stress. Active coping is hypothesized to have a negative main effect, whereas avoidant coping is expected to have a positive main effect. Figure 1 also presents interaction effects, which are represented by the vertical arrows. Thus, active coping is expected to attenuate the

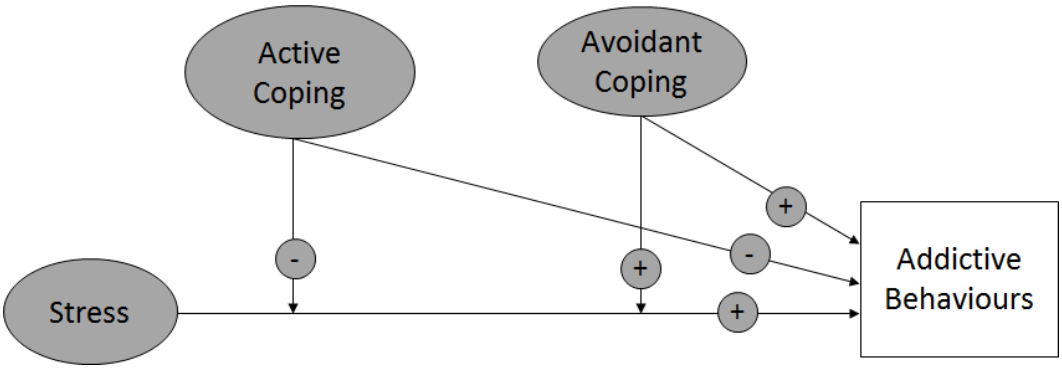

Figure 1. Wills' stress-coping model of addictive behaviour (Wills & Hirky, 1996; Wills & Shiffman, 1985).

relationship between stress and addictive behaviour by mitigating the deleterious effects of stress, thus reducing the need to cope through addictive behaviours. Meanwhile, avoidant coping is hypothesized to strengthen the relationship between stress and addictive behaviours. Individuals with avoidant coping skills are expected to be less effective at alleviating these harmful effects, thus increasing the chances that they will turn to addictive behaviours when faced with stress.

Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) has most frequently been investigated in relation to substance use and dependence (e.g., Cooper, Russell, Skinner, Frone, & Mudar, 1992; Grunberg, Moore, & Anderson-Connelly, 1999; Wills, 1985). However, one study was identified to have examined the applicability of this model to gambling problems (Lightsey & Hulsey, 2002). These authors tested the hypotheses of Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) in a sample of university students who were problem gamblers, social gamblers, and non-gamblers. They reported that among low impulsive males, problem-focused coping predicted less problem gambling, and among high impulsive males,

emotion-focused coping predicted more problem gambling. Meanwhile, emotion-focused coping strengthened the relationship between stress and problem gambling among low impulsive males. Lightsey and Hulsey's (2002) investigation deserves recognition as the first study to employ an interactive stress-coping framework to study problem gambling. However, like most literature in this area, there were a number of limitations, particularly concerning the measurement and the conceptualization of model variables. The current investigation thus sought to extend this previous study by Lightsey and Hulsey (2002) and to address the limitations of that study by employing empirically validated measures of specific stressors, coping methods, and psychological and problem gambling outcomes. Given the scarcity of research in the stress, coping and problem gambling area, the present investigation was intended to be an exploratory study that was enhanced by improved and more rigorous research design and methodology.

Two sets of exploratory hypotheses were tested in the current study. The first set of hypotheses focused on the contributions of stress, active coping, and avoidant coping to relevant outcomes in the context of Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985; see Figure 2). To enhance the practical applications of the hypotheses, loneliness and job stress were selected as specific stressor variables for inclusion in this study. In addition, the study included two active coping variables, which were also selected based on previous theoretical and empirical work: (a) problem-focused coping, and (b) emotional approach coping, defined as "processing and expressing emotions associated with stressful events" (Stanton, Danoff-Burg, Cameron, & Ellis, 1994, p. 351). Avoidance coping, which is classified under the higher order category of avoidant coping, was also included as a predictor in the present study. Additionally, to

further expand the applications of the stress-coping model, all hypotheses were examined in relation to (a) problem gambling symptoms, (b) gambling behaviours (frequency, duration, and dollars spent), and (c) depressive symptoms, the latter of which are common presenting features of problem gamblers (see Kim, Grant, Eckert, Faris, & Hartman, 2006). The proposed stress-coping was thus examined six times, once for each of two stressors (i.e., loneliness and job stress) in relation to the three outcomes (i.e., problem gambling symptoms, gambling behaviours, and depressive symptoms).

A second set of hypotheses explored the contributions of religious coping variables in the context of Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985). Religious coping has been defined as "the use of religious beliefs or behaviours to facilitate problem-solving to prevent or alleviate the negative emotional consequences of stressful life circumstances" (Koenig, Pargament, & Nielsen, 1998, p. 513). As presented in Figure 3, positive religious coping was hypothesized to predict lower levels of each of the outcome variables and to attenuate the links between stressors and outcome variables. Conversely, negative religious coping was hypothesized to predict higher levels of the outcomes and to strengthen the relationships between stressors and outcomes. The contributions of religious coping variables were hypothesized to be significant over and above the effects of the stress-coping model variables.

To address the limitations of previous literature, the current study incorporated (a) a sample of frequent gamblers from the general population, including both men and women; (b) correspondence between specific stressors and coping methods within the

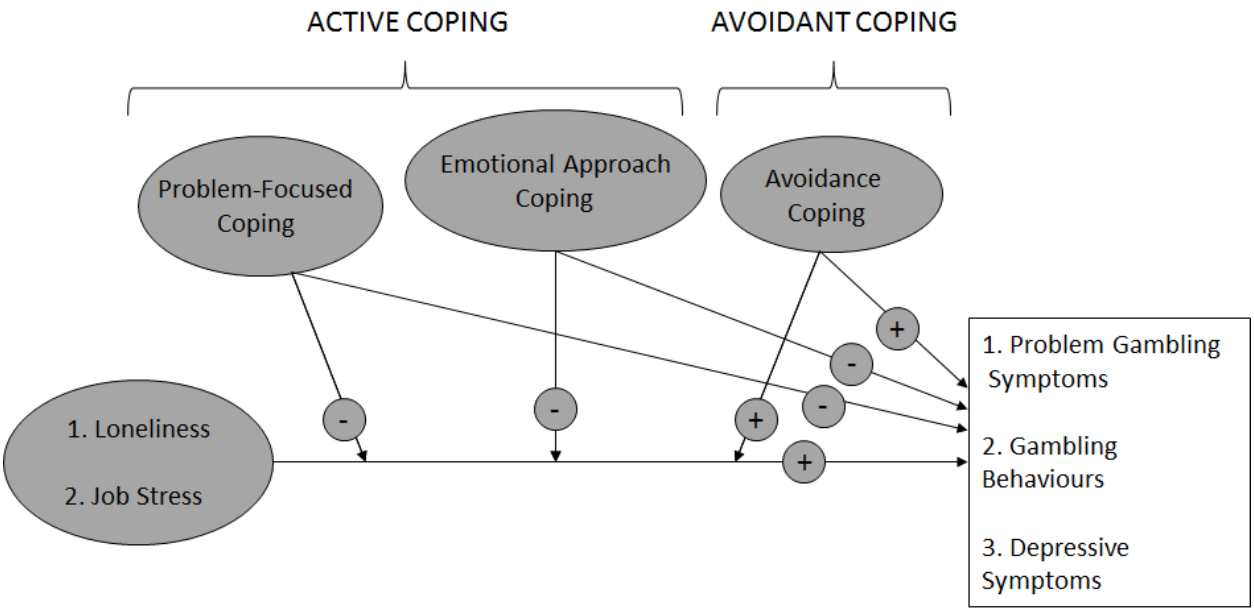

Figure 2: Main and interactive effects as posited by the proposed stress-coping model of problem gambling

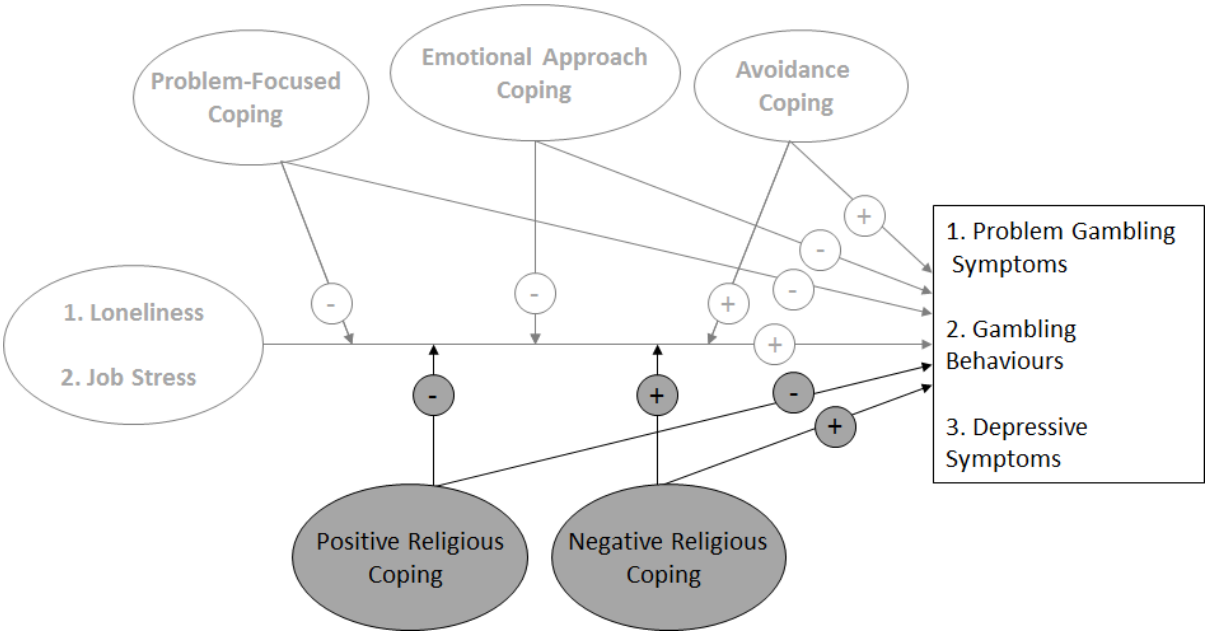

Figure 3: Hypothesized main and interactive effects of positive and negative religious coping on outcomes, examined in the context of the proposed stress-coping model of problem gambling.

same model; and (c) improved measures of stress, coping, and outcomes. To further enhance the validity of the results, these variables were explored in the context of an established multivariate framework of stress and coping. By incorporating the forgoing methodological and conceptual contributions, the current study sought to identify coping processes that may act as risk or protective factors for problem gambling outcomes, thus suggesting potentially fruitful directions for future research on the prevention and treatment of gambling pathology.

CHAPTER II

Literature Review

The following sections present the theoretical and empirical foundation for the proposed investigation. First, the theoretical models that provide the context for the study hypotheses are presented. The historical conceptualizations of problem gambling are then discussed, followed by a review of (a) the literature on each of the predictor variables in the proposed stress-coping model, and (b) the literature on positive and negative religious coping.

Theory and Conceptual Framework for the Present Study

This section fully lays out the conceptual foundation for the model employed in the present study. First, Lazarus's (1966) transactional model of stress and coping is described. Wills' stress-coping model of addictive behaviour (Wills & Hirky, 1996; Wills & Shiffman, 1985) is then presented as the statistical framework for the project. Empirical evidence supporting the validity of the stress-coping model of addiction in relation to substance use and problem gambling is then reviewed. The final section outlines the proposed stress-coping model and hypotheses of the present study.

Transactional model of stress and coping. The transactional model developed by Richard Lazarus and his colleagues (e.g., Lazarus, 1966; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984) has arguably been the most influential theory of stress and coping. This theory delineates the coping process in the form of a conceptual, temporal model (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; see Figure 4). In essence, the transactional model proposes that the onset of a *stressor* is followed by the selection and implementation of a *coping* response. The *immediate outcome* is the effect

of the coping response. Lazarus and colleagues also conceptualize coping as a set of strategies that can be implemented differently across contexts; the effectiveness of these strategies depends on the circumstances of the stress-coping process (Lazarus & Folkman, 1984). Thus, according to the transactional model, a given coping method cannot be uniformly adaptive or maladaptive.

Empirical tests of the transactional model (Lazarus, 1966) can be classified as either temporal or cross-sectional. Temporal investigations typically assess participants' moment-to-moment cognitive processes in response to a stressful situation (e.g., Folkman & Lazarus, 1988). Meanwhile, cross-sectional tests of the transactional model include variables such as stress, coping, and outcome at a single point in time. Therefore, they cannot make claims about the relationships between these variables in the context of a given stressful encounter. Rather, they assess the coping process indirectly by examining how these variables have become correlated over time (i.e., through the repeated implementation of a particular coping process). Thus, the variables in cross-sectional models are implicitly assumed to be trait-like and somewhat stable over time.

Tests of the transactional model (Lazarus, 1966) can also be classified along a second dimension, based on whether coping is posited as a statistical mediator or moderator. While both classifications are commonly used, some authors have argued that coping is most appropriately tested as a moderator, as coping affects the impact of stress on outcomes (Holmbeck, 1997). This suggests that the efficacy of a coping strategy can be assessed by examining how it moderates the relationship between stress and outcomes (Marshall, 1979).

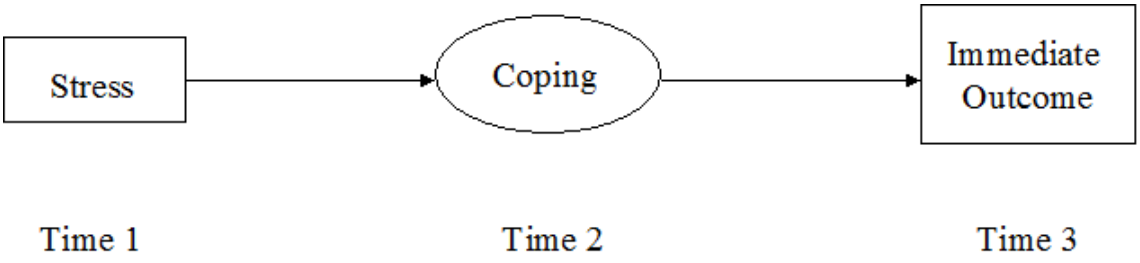

Figure 4. The transactional model of stress and coping, diagrammed temporally.

Wills' stress-coping model of addictive behaviour. Wills and colleagues (Wills & Hirky, 1996; Wills & Shiffman, 1985) proposed a cross-sectional, moderation model that tests Lazarus's (1966) transactional model in relation to substance use (see Figure 1). Two forms of coping are posited in this model: *active coping*, defined as "responses that involve investment of effort in dealing with the problem," and *avoidant coping*, defined as "responses in which a person disengages from investing effort in trying to cope" (Wills & Hirky, 1996, p. 281). Both active and avoidant coping are presented as higher-order coping categories under which more specific forms of coping are classified (e.g., problem-solving is classified as active coping, and denial as avoidant coping). The model hypothesizes three main effects.

First, life stress is expected to be positively associated with addictive behaviour, because such activities are often used to escape stress (Wills & Hirky, 1996; Wills & Shiffman, 1985). Second, active coping skills are hypothesized to be negatively related to addictive activities; third, avoidant coping skills are hypothesized to be positively associated with addictive activities. This model also hypothesizes two interactions, or moderating, effects. In particular, it posits that active coping mitigates the negative affective consequences of stress. Conversely, it hypothesizes that avoidant coping

strengthens the association between stress and addictive behaviour. Specifically, because avoidant coping strategies are unlikely to alleviate distress, individuals who use avoidant coping strategies are more likely to turn to addictive behaviours to cope with stressors.

Advantages and disadvantages of the stress-coping model. Like all conceptual and statistical models, Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) offers advantages and disadvantages. One potential disadvantage pertains to the conceptualization of active and avoidant coping variables as distinct constructs. It is arguably more apt to cast active and avoidant coping as opposing ends of a single continuum, rather than as separate constructs. A response to this argument, however, is that active and avoidant coping are similar but distinct concepts. For instance, if one uses few active coping strategies because the perceived threat is minimal, this does not reflect avoidant behaviour. Because these variables are not direct opposites, both were included in the present study.

In addition, Wills' model (Wills & Hirky, 1996; Wills & Shiffman, 1985) examines the effect of coping on addictive behaviour while controlling for stress, which presents advantages and disadvantages. An advantage of this approach is that it accounts for the possible effect of stress as a third variable. However, controlling for stress also precludes the possibility that stress mediates the effect of coping on addictive behaviour. Thus, to the extent that coping affects outcomes by altering stress levels, the main effect of coping will not be observed in the context of the model. Overall, the advantages of this model were nevertheless deemed to exceed the disadvantages.

Empirical support for the stress-coping model. Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) has been applied across contexts and populations, and it has received empirical support. Studies have shown that higher levels of stress (Beaudoin & Cox, 1999; Clarke et al., 2007), lower levels of active coping (Bergevin, Gupta, & Derevensky, 2006; Getty, Watson, & Frisch, 2000; Nower, Derevensky, & Gupta, 2004), and higher levels of avoidant coping (Bergevin et al., 2006; Getty et al., 2000; Gupta, Derevensky, & Marget, 2004; Scannell, Quirk, Smith, Maddern, & Dickerson, 2000) predict addictive behaviours.

In addition, previous literature has found partial support for the interaction effects posited by Wills and colleagues' (Wills & Hirky, 1996; Wills & Shiffman, 1985) model. For example, many authors have reported that the link between stress and alcohol consumption is stronger at higher levels of avoidance coping (Cooper et al., 1992; Cronkite & Moos, 1984; Veenstra et al., 2007); however, some mixed findings have been reported as well (Frone & Windle, 1997). Similarly, active forms of coping have been linked to weaker relationships between stress and addictive behaviour (Brady, Tschann, Pasch, Flores, & Ozer, 2009; Wills, 1985). However, the results of these studies indicate that such moderating effects of active coping may depend on the specific stressor, suggesting that it is important to examine coping in relation to specific stressors.

To date, only one study tested Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) in relation to problem gambling. Lightsey and Hulsey (2002) used this model to predict gambling problems in a sample of university students. They used (a) the Life Events Scale for Students (LESS; Linden, 1984) to measure stress; (b) subscales of the Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1990)

to measure active, emotion-focused,[1] and avoidant coping; and (c) the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) to measure problem gambling severity. These authors reported several significant findings among the males in their sample. In particular, problem-focused coping predicted fewer problem gambling symptoms among low impulsive participants, whereas emotion-focused coping predicted more problem gambling symptoms among high impulsive participants. They also reported an interaction effect among the low-impulsive group wherein emotion-focused coping strengthened the relationship between stress and problem gambling. In the context of Wills' model (Wills & Hirky, 1996; Wills & Shiffman, 1985), these results thus offer support for the hypothesized main effect of active coping. In addition, because emotion-focused and avoidant coping overlap considerably (e.g., Wohl et al., 2005; see Criticisms of Emotion-Focused Coping, p. 43), their findings may also provide partial support for the hypothesized main and interaction effects of avoidant coping in predicting problem gambling.

Lightsey and Hulsey's (2002) study was an important contribution to the literature. Nevertheless, like most of the studies on coping and problem gambling, their investigation was affected by a number of methodological limitations, such as overreliance on potentially confounded measures of emotion-focused coping and problem gambling, use of overly general measures of stress and coping, and recruitment of a university student sample, some of whom were not gamblers. The current study sought to address these limitations by incorporating a number of methodological improvements

[1] The authors did not explicitly conceptualize emotion-focused coping as either active or avoidant. (See Criticisms of emotion-focused coping section for a more thorough discussion of emotion-focused coping.)

such as more valid measures and a more generalizable sample (see Methodological Contributions of the Current Study, p. 69).

Having outlined the conceptual and statistical framework for the current project, the following section reviews the historical and conceptual foundations of gambling and problem gambling to provide a context for the present investigation.

Historical Conceptualizations of Problem Gambling

Prior to the 20th century, the Western world viewed excessive gambling primarily from a moralistic perspective (Bernhard, 2007). One colonial author proclaimed that such behaviour was "an appearance of evil, as is forbidden in the word of God" (Mather, 1702/1820, p. 263). Such condemnations have been commonplace since as early as the 17th century (Zangeneh, Grunfeld, & Koenig, 2008); only recently have writings on the topic moved away from viewing gambling problems as a disorder of the soul (Bernhard, 2007).

As psychology emerged as an independent discipline in the early 20th century, references to immorality and the human soul all but disappeared from the problem gambling literature (Bernhard, 2007), replaced by psychoanalytic interpretations. For example, Freud (1928/1961) viewed excessive gambling as a form of self-punishment in response to unconscious guilt. This theory was further developed and expanded by later authors (e.g., Bergler, 1957).

The founding of Gambler's Anonymous (GA) in 1957 marked another important development in the conceptualization of gambling problems (Rosecrance, 1985). Much like Alcoholics Anonymous (AA), GA played a key role in introducing the medical model of excessive gambling while simultaneously emphasizing the spiritual aspects of

the disorder (Ferentzy & Skinner, 2008). A central tenet of the 12-step model of addictions recovery is that addiction is a psychological illness that can be effectively treated through connections with a higher power and with other recovering addicts. Although some elements of the original 12-step model were altered for GA, the medical and spiritual emphases of AA were maintained (Ferentzy & Skinner, 2008).

Current conceptualizations of problem gambling. The term problem gambling refers to "gambling behavior that creates negative consequences for the gambler, others in his or her social network, or for the community" (Ferris & Wynne, 2001, p. 7). While this term is most commonly used in the literature, other definitions are occasionally employed to refer to specific subgroups of problem gamblers. For instance, the designation pathological gambling, which is used by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, APA, 2000), describes particularly severe levels of problem gambling. Following convention, the current paper uses the term problem gambling to refer to disordered gambling behaviours that either do or do not meet DSM-IV criteria; related terms (e.g., excessive gambling, gambling pathology, disordered gambling) are used interchangeably. The terms recreational gambling and social gambling will be used in reference to gambling activities that are not of clinical concern; the term frequent gambling will refer to gambling behaviours that occur often and may or may not indicate gambling pathology.

Although conceptualizations of problem gambling have evolved considerably over the last century, the field has yet to reach a consensus about how best to classify this disorder. Some experts believe that it should be included with impulse control disorders, as it is in the DSM-IV (APA, 1994). However, others argue that it is more aptly classified

as an addictive disorder (Blanco, Moreyra, Nunes, Saiz-Ruiz, & Ibanez, 2001; Durdle, Gorey, & Stewart, 2008). To illuminate this debate, it is helpful to consider how associated features of problem gambling relate to each of these designations.

Impulse control disorders involve failure to resist harmful impulses, which is consistent with problem gamblers' recurring failure to resist gambling urges (APA, 2000). Indeed, the association between impulsive traits and problem gambling has been widely documented (Blaszczynski, Steel, & McConaghy, 1997; Moore & Ohtsuka, 1997; Slutske et al., 2001; Steel & Blaszczynski, 1998), suggesting a link between these disorders. However, studies examining the relationship between problem gambling and other impulse control disorders have yielded mixed results. To clarify this issue, a recent investigation meta-analyzed 18 published studies on problem gambling and obsessive-compulsive spectrum disorders (Durdle et al., 2008). Overall, problem gambling was strongly associated with obsessive-compulsive traits but only weakly associated with obsessive-compulsive spectrum disorders. Thus, the results provided only partial support for the classification of gambling problems as a disorder of impulse control.

Meanwhile, other authors have argued that problem gambling is best classified as an addictive disorder. Shaffer and colleagues (2004) make a compelling case that a common pathology underlies disparate types of addictive phenomena. As the authors point out, this theory is supported by numerous studies documenting shared neurobiological antecedents, shared psychosocial correlates, and shared experiences across various addictive disorders. For example, researchers have reported similar effects of seemingly unrelated addictive behaviours on the brain's dopamine reward system (e.g., Betz, Mihalic, Pinto, & Raffa, 2000). Similarly, withdrawal symptoms, which were once

thought to be exclusive to substance addiction, have now been observed in problem gamblers as well (Blaszczynski, Walker, Sharpe, & Nower, 2008). Moreover, the fact that problem gambling is often comorbid with substance dependence has been cited as additional support for its classification as an addictive disorder (e.g., Feigelman, Wallisch, & Lesieur, 1998; Lesieur & Heineman, 1988). In recent years, professional consensus has been moving toward the latter conceptualization. At the time that the current paper was written, the proposed revisions to the DSM-5 reclassified gambling disorders with other addictive behaviours (American Psychiatric Association, 2012), citing the growing body of evidence indicating a shared etiology, physiology, and clinical features of these two classes of disorders.

Measurement issues associated with problem gambling. Previous studies on problem gambling have generally assessed gambling outcomes based on problem gambling symptoms, thus reinforcing the conceptualization proposed by the DSM-IV (1994). However, while problematic sequelae of gambling behaviours comprise a core component of disordered gambling, they represent only a partial indication of problem gambling outcomes. Thus, as indicated earlier, some authors have recommended assessing added outcomes to complement more traditional indices of gambling pathology. Thus, a total of three outcome variables were included in the present study: (a) problem gambling symptoms, (b) gambling behaviours, and (c) depressive symptoms. These variables are discussed in the following sections to substantiate their inclusion in the current investigation.

Measurement of problem gambling symptoms. As the problem gambling field develops, the complexity of gambling pathology is becoming increasingly apparent. The

diversity in game choice, motivating factors, and demographic variables pose challenges for the measurement of this construct. The variation within problem gamblers has even led some authors to suggest that problem gambling is actually a heterogeneous collection of disorders rather than a uniform phenomenon (Blaszczynski & Nower, 2002; Ledgerwood & Petry, 2006). However, because progress toward identification of subtypes in this population has only just begun, current measures generally continue to operationalize problem gambling as a homogeneous phenomenon (see Abbott & Volberg, 2006, for a review).

Over the last two decades, a number of new problem gambling measures have emerged in the literature. Of these instruments, the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987), its revised version, the SOGS-R (Lesieur & Blume, 1993), and other SOGS derivatives have been widely used in research studies worldwide (Abbott & Volberg, 2006). However, although the SOGS is an effective screener for serious gambling pathology (Wynne, 2003), its sensitivity to mild or moderate problems may be more limited (Strong, Breen, Lesieur, & Lejuez, 2003). Thus, the Problem Gambling Severity Index (PGSI; Wynne, 2003) was developed to address this concern (see Raylu & Oei, 2002, for a discussion). The PGSI distinguishes between low-risk gamblers, moderate-risk gamblers, and problem gamblers, thus providing a finer gradient in classifying respondents. Both the SOGS and the PGSI assess pathological consequences of gambling (e.g., feelings of guilt associated with gambling behaviours), and thus they provide important indices of negative consequences of problem gambling.

Measurement of gambling behaviours. Although symptom checklists such as the SOGS (Lesieur & Blume, 1993) and the PGSI (Wynne, 2003) are of great utility to

gambling researchers, they overtly inquire about the stigmatized consequences of excessive gambling, which increases the likelihood of socially desirable responding (Kuentzel et al., 2008). Recognizing this limitation, some problem gambling researchers have begun to assess objective gambling behaviours rather than gambling-related symptoms. In particular, some recent investigations have employed a modified version of the Timeline Followback method (TLFB; Sobell & Sobell, 1992). The TLFB was originally designed for use with substance use populations, and it has now been adapted to assess gambling behaviours (Hodgins & Makarchuk, 2003; Weinstock et al., 2004). Unlike other gambling self-report measures, the TLFB for gambling (Gambling Timeline Followback, or G-TLFB) uses a calendar format to assess how much money and time participants spent on gambling in a given period.

Using a sample of university student gamblers and treatment-seeking problem gamblers, Kuentzel and colleagues (2008) showed that compared to SOGS scores, G-TLFB scores were considerably less affected by social desirability. Specifically, in both of their samples, SOGS scores were negatively associated with impression management and self-deceptive enhancement. On the other hand, G-TLFB scores showed no associations with impression management and were unrelated to self-deceptive enhancement in the treatment-seeking group and only weakly related to self-deceptive enhancement in the student group. Meanwhile, Weinstock and colleagues (2004) found that scores on the 6-month G-TLFB for gambling were uncorrelated with social desirability bias. Moreover, discrepancies between daily monitoring of gambling behaviours over six months and retrospective reports of gambling during this same period were similarly uncorrelated with social desirability. Although the published literature to

date has focused only on paper-and-pencil administration method of the G-TLFB, both telephone and computerized versions of the original TLFB have been validated for measuring alcohol use (Sobell, Brown, Leo, & Sobell, 1996; Maisto, Conigliaro, Gordon, McGinnis, & Justice, 2008).

Together, the findings reviewed above suggest that asking respondents about objective gambling behaviours in addition to gambling-related psychopathology provides richer and potentially more valid data regarding the nature and consequences of disordered gambling (see Walker et al., 2006, for a discussion of the importance of measuring both dimensions). Therefore, the current study included two measures of gambling outcome: (a) problem gambling symptoms (assessed using the PGSI), and (b) gambling behaviours (assessed using the G-TLFB).

Measurement of depressive symptoms. Because coping methods have widespread implications for an individual's mental health, it is important to assess outcomes more broadly in gambling populations (Walker et al., 2006). While a number of psychological symptoms are likely comorbid with disordered gambling (see Johannson, Grant, Kim, Odlaug, & Gotestam, 2008), it is beyond the scope of this project to examine each one. Depressive symptoms were thus selected as a representative measure of psychological well-being for several reasons. First, depressive symptomatology has shown a particularly strong relationship with disordered gambling (e.g., Black & Moyer, 1998; Getty et al., 2000; Kim et al., 2006; Wohl, Matheson, Young, & Anisman, 2008). Second, although many pathological processes reflect important outcomes in this population, depressive symptoms are arguably the most reflective of quality of life. Third, the new coping variables under investigation (i.e., emotional approach and religious coping) have

been empirically demonstrated as relevant to depression in particular (Pargament et al., 1998; Tull, Gratz, & Lacroce, 2006). Thus, the present study tested the proposed model in relation to problem gambling severity, gambling behaviours, and depressive symptoms. This approach acknowledges that specific coping processes may have different implications for different outcomes.

Having discussed the literature on problem gambling, the sections that follow review the literature pertaining to life stress (particularly loneliness and job stress) and coping variables (particularly problem-focused, emotional approach, and avoidance coping; positive and negative religious coping). Emphasis is placed on literature relevant to the study hypotheses.

Life Stress

Life stress has often been implicated in the development and maintenance of problem gambling (Elman et al., 2010; Friedland et al., 1992), and evidence suggests that loneliness and job stress may be particularly salient in this regard (e.g., Oei & Gordon, 2008; Turner et al., 2006). Thus, the present section begins by examining the empirical link between life stress and problem gambling. This discussion is followed by reviews of the conceptual and empirical literature on loneliness and job stress as predictors of gambling pathology.

Life stress and problem gambling. In keeping with the classification of disordered gambling as an addiction, research hypotheses concerning problem gambling are often informed by substance abuse research. Because a primary function of substance abuse is the alleviation of distress (Fischer, Forthun, Pidcock, & Dowd, 2007; Windle & Davies, 1999), researchers have examined the possibility that excessive gambling serves

a similar function. In support of this hypothesis, studies have shown that problem gamblers are more likely than recreational gamblers to gamble in response to stress (e.g., Clarke et al., 2007). These findings are consistent with the classification of gambling problems with substance dependence and support the DSM-IV (APA, 1994) criterion regarding the use of gambling as an escape coping strategy.

In fact, many studies have suggested a causal link between life stress and the onset of gambling problems. For instance, Turner and colleagues (2006) surveyed self-reported problem gamblers and found that, just prior to developing gambling problems, 55% of participants had felt their lives lacked direction and 33% had experienced a stressful life event. Overall, pathological gamblers also reported significantly more stressful life events than non-problem gamblers in the year before they started gambling. Similarly, Clarke and colleagues (2007) surveyed gamblers in New Zealand about their motivations for beginning to gamble. They found that, compared to recreational gamblers, problem gamblers were significantly more likely to report gambling to deal with stress.

Moreover, following the onset of gambling problems, life stress may contribute to the maintenance and exacerbation of this behaviour pattern. For example, Wood and Griffiths (2007) interviewed 50 problem gamblers in Australia about the role of gambling in their lives. They found that participants often reported using gambling to escape from stress by "filling the void" or "avoiding problems" (p. 107). These authors concluded that, for some problem gamblers, gambling may function as an emotion regulation mechanism. Further, Ricketts and Macaskill (2003) interviewed 14 men in treatment for gambling problems, and they reported comparable results: to varying degrees,

participants reported gambling to "shut off from the emotional trigger" (p. 389) of their distress. Likewise, a study conducted at an addictions clinic in Manitoba found that 84% of individuals seeking treatment for gambling problems reported having used gambling "as a way of escaping from problems in life or as a way of getting rid of unpleasant feelings" (Beaudoin & Cox, 1999, p. 484). These results indicate that, for many individuals, life stress contributes to the onset and perpetuation of disordered gambling.

Research investigating more specific forms of life stress in relation to gambling problems is still quite limited. Nevertheless, some preliminary findings suggest that two broad categories of stressors are likely particularly salient in this regard. In particular, echoing the two broad life themes of love and work outlined by many influential theorists (e.g., Erikson, 1963; Maslow, 1954; Rogers, 1961), loneliness and occupational stress have been identified as particularly relevant stressors to the development and exacerbation of gambling problems. The literature on these two constructs is reviewed in the following sections to support their inclusion in the present study.

Loneliness. Peplau and Perlman (1982) use the term *loneliness* to describe an aversive experience reflecting dissatisfaction with one's social network. It should be noted that while loneliness is similar to the constructs of social isolation and social support, these terms are not interchangeable. Social isolation, for example, refers to an objective metric of contact with others; loneliness, on the other hand, is a subjective experience resulting from unmet interpersonal needs (Britton & Conner, 2007). This conceptual distinction is important, as objective measures of social contact do not always correspond to subjective measures of satisfaction (Fischer & Phillips, 1982; Jones, 1981; Russell, 1996). As many authors have observed, people who are alone are not necessarily

lonely, and lonely people are not necessarily alone (e.g., Booth, 1983; Heinrich & Gullone, 2006).

Similarly, although some researchers have equated loneliness with low levels of social support (e.g., Murphy & Kupshik, 1992), most have treated these phenomena as distinct but overlapping constructs. For example, many authors have discussed two broad types of loneliness, which are often referred to as social loneliness and emotional loneliness (Weiss, 1975). Social loneliness is generally conceptualized as a low level of social support, whereas emotional loneliness reflects unmet attachment needs (Stroebe, Stroebe, Abakoumkin, & Schut, 1996). In other words, many authors view social support as being only one aspect of loneliness. In keeping with this conceptualization, in the current paper loneliness is posited to be a broader construct than social isolation or support. Nevertheless, it should be noted that much of the evidence linking interpersonal stress to gambling problems focuses specifically on social support. Thus, to formulate hypotheses regarding the effect of loneliness on gambling problems, the following discussion draws heavily on this particular literature.

Loneliness and well-being. Empirical evidence links loneliness to a range of psychosocial problems, including depression (Brage, Meredith, & Woodward, 1993), anxiety disorders (Plaisier et al., 2007), and suicidal ideation (Stravynski & Boyer, 2001). Further, loneliness is inversely associated with spiritual well-being (Walton, Shultz, Beck, & Walls, 1991) and with overall quality of life (Schumaker, Shea, Monfries, & Groth-Marnat, 1993). Reports from the area of health psychology further indicate that inadequate social support has a significant negative impact on physical health (Campbell, 1992). Finally, and particularly relevant to the present discussion, there is a vast literature

documenting the positive link between loneliness and substance use problems (e.g., Akerlind & Hornquist, 1989; Nerviano & Gross, 1976; Medora & Woodward, 1991; Olmstead, Guy, O'Malley, & Bentler, 1991; Page & Cole, 1991).

Loneliness and problem gambling. In addition to predicting various facets of emotional well-being, a number of authors have proposed that loneliness contributes to gambling pathology (e.g., Ocean & Smith, 1993; Rachlin, 2000; Thomas, Sullivan, & Allen, 2009). One particularly influential theory in this regard was put forth by Jacobs (1986), who proposed that problem gambling arises out of feelings of interpersonal rejection and a basic sense of inferiority. He suggested that gamblers can temporarily escape these aversive feelings through "wish-fulfilling fantasies of being an important personage, highly successful and admired" (p. 17). According to Jacobs' theory, gambling allows certain individuals to avoid painful feelings of loneliness and rejection through dissociation and the hope for interpersonal fulfillment.

There are many reasons why problem gamblers may feel lonely. First, the impact of disordered gambling on social relationships is well documented in the research and clinical literature (APA, 2000; Bertrand, Dufour, Wright, & Lasnier, 2008; Lorenz & Shuttlesworth, 1983; Lorenz & Yaffee, 1988). Indeed, the lying and stealing behaviours that are characteristic of excessive gambling behaviour (APA, 2000) erode the trust in couple relationships, often leading to divorce (Dickson-Swift, James, & Kippen, 2005). Additionally, the shame associated with gambling problems may cause some gamblers to withdraw socially, thus limiting opportunities for social support and leading to the dissolution of important relationships. Moreover, the literature points to various predisposing factors that may put problem gamblers at risk for loneliness, such as

narcissism (Lakey, Rose, Campbell, & Goodie, 2008), personality disorders (Ibanez et al., 2001; Slutske et al., 2001), and anger problems (Korman et al., 2008).

For some individuals, gambling may offer an attractive response to these unmet interpersonal needs. In addition to functioning as a general emotion regulation strategy (see Life Stress and Problem Gambling section, p. 22), gambling activities often provide accessible opportunities for interpersonal contact and social integration, thus temporarily countering feelings of loneliness (Vander Bilt, Dodge, Pandav, Shaffer, & Ganguli, 2004). Casino tables in particular have been proposed to offer a sense of belonging and group solidarity (Hayano, 1982), where "everyone is equal. All you need is the money to ante up, and you're included. That sense of belonging erases [gamblers'] feeling of alienation" (Ronsenthal & Rugle, 1994, p. 29). Indeed, excessive gambling is likely maintained by these powerful social rewards, which counter gamblers' increasing feelings of alienation in relation to outside society (Ocean & Smith, 1993). Other types of gambling have been discussed in terms of their social benefits as well; for instance, the attraction of bingo for some female gamblers lies in the social interaction that occurs at the bingo hall (Dixey, 1987).

The theory that loneliness is a risk factor for the development of problem gambling is supported by correlational studies documenting a link between these factors across a variety of demographic groups in the general population. Among adolescents, gambling problems have been linked to lower levels of perceived social support (Hardoon, Gupta, & Derevensky, 2004) and higher levels of social stress (Ste-Marie et al., 2006). In addition, among older adults from Detroit, lower levels of social support predict disordered gambling after controlling for other relevant psychosocial variables

(Zaranek & Lichtenberg, 2008). Likewise, studies have found that loneliness and perceived social support are associated with gambling problems in university student populations (Porter, Ungar, Frisch, & Chopra, 2004; Weinstock & Petry, 2006). Finally, a survey of female electronic gaming machine players in Australia found that problem gamblers were significantly lonelier than recreational gamblers and nongamblers (Trevorrow & Moore, 1998). In particular, problem gamblers were more likely than the rest of the sample to endorse "feeling alienated, not understood and 'out of tune' with others, rather than being worried about lack of social skills or companionship, being alone, or lacking meaningful relationships" (p. 277).

Research findings have demonstrated a correlational link between loneliness and gambling problems among treatment-seeking populations as well. For instance, a recent study on Gamblers Anonymous (GA) members showed that social support (i.e., an aspect of loneliness) was second only to GA attendance and participation in its ability to discriminate between abstinent and relapsed group members (Oei & Gordon, 2008). Another study investigating change processes in treatment-seeking problem gamblers found that emotional support was negatively correlated with gambling problems and positively correlated with abstinence self-efficacy and motivation to change (Gomes & Pascual-Leone, 2009). The authors speculated that emotionally supportive interactions may foster a more positive self-regard, and thus "these individuals, by way of viewing the self in positive terms, begin to feel worthy of a better life and change becomes a desirable goal" (p. 13). Importantly, these authors reported that emotional support was also predictive of depression scores on the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), indicating that loneliness may be linked to poor psychological outcome

in general in this population. This finding is consistent with results from earlier studies on problem gamblers that linked interpersonal difficulties to broader indicators of well-being, including gambling-related suicide (Blaszczynski & Farrell, 1998; Graham & Burvill, 1992) and suicidal intentions (Frank, Lester, & Wexler, 1991).

While the correlational evidence reviewed above suggests an association between loneliness and gambling problems, the cross-sectional designs of these studies preclude causal interpretations. However, a few studies have reported stronger evidence for a causal pathway from loneliness to gambling problems. For example, studies suggest that loneliness is a temporal precipitant of gambling problems in community samples. A survey of individuals from a community sample in Ontario found that gambling problems were significantly associated with retrospective indicators of social stress in the year before starting gambling (Turner et al., 2006). Specifically, compared to nonproblem gamblers, pathological gamblers were more likely to endorse having been without a romantic partner and less likely to endorse having had supportive friends in the year prior to beginning gambling. In another study, Clarke and colleagues (2007) surveyed a community sample of gamblers in New Zealand regarding their motivations for starting and continuing gambling. They found that the desire to relieve feelings of loneliness was a primary reason why participants continued to gamble after the initiation of gambling behaviours, particularly among the Pakeha (New Zealand European) and Maori (New Zealand indigenous people). Moreover, a later study by the same authors showed that problem gamblers were more likely than recreational gamblers to use gambling to cope with feelings of loneliness (Clarke et al., 2006).

These results corroborate findings reported by Brown and Coventry (1997), who interviewed female problem gamblers in Australia about their reasons for gambling. They found that loneliness and social isolation were the most commonly mentioned motivating factors in their sample, with 47% of callers citing these as reasons for gambling. Participants specified that gambling provided "relief from the isolation…someone to talk to…[and] a way of getting out and being social" (p. 39). Thus, in sum, the correlational and qualitative research reviewed above provides support for the hypothesis that loneliness contributes to the development and exacerbation of problem gambling.

In addition, the results of two recent experimental investigations provide further evidence of a causal pathway from loneliness to problem gambling. Twenge, Catanese, and Baumeister (2002) conducted a series of laboratory studies to examine the effects of loneliness on self-defeating behaviours. They reported that experimentally induced loneliness led to various self-defeating behaviours, including the selection of a high-risk option in a lottery task. This finding suggests that loneliness may disrupt self-regulation capacities, leading to the impulsive and excessive wagering frequently observed in problem gamblers (APA, 2000). Additionally, results from a recent series of experiments by Zhou, Vohs, and Baumeister (2009) indicated that among Chinese university students, (a) social exclusion increases participants' desire for money; (b) counting money (rather than pieces of paper) assuages distress following social rejection; and (c) reminders of having spent money intensify distress following social rejection. These results have important implications for problem gambling research, as they suggest that the problem gambler's cycle of desiring money, spending (handling) money, and regretting having spent money (Blaszczynski & Silove, 1995) is driven at least in part by feelings of social

distress. As of yet, such experimental studies linking loneliness and gambling are rare; however, in combination with the correlational and qualitative studies cited above, these experimental designs make a convincing case for a causal link between these two variables. Moreover, findings from a study on problem gambling outpatients in Ontario showed that emotional and instrumental forms of social support were negatively associated with depressed affect, suggesting that loneliness is also linked to more general psychological outcomes in this population (Gomes & Pascual-Leone, 2009).

It should be noted, however, that not all studies have found an association between loneliness and problem gambling. For instance, a study of university students revealed a positive association between loneliness and problem gambling among women, but not among men (Porter et al., 2004). Another study of male and female electronic gaming machine players in Australia found that loneliness did not significantly predict gambling problems in their regression model (Ohtsuka, Bruton, Deluca, & Borg, 1997). These discrepant findings suggest that there are perhaps specific circumstances that predispose certain lonely individuals to develop gambling problems. The current research project sought to examine the possibility that these inconsistencies are due in part to differences across gamblers in the use of effective and ineffective coping strategies.

Summary. Loneliness has been linked to serious physical and mental health consequences in a variety of populations (Heinrich & Gullone, 2006). Just as loneliness has been associated with substance use problems (Olmstead et al., 1991; Page & Cole, 1991), results from the correlational, qualitative, and experimental studies reviewed above indicate that loneliness is also a risk factor for excessive gambling (Trevorrow and

Moore, 1998; Weinstock & Petry, 2006; Clarke et al., 2006) and for depression among problem gamblers (Gomes & Pascual-Leone, 2009).

Job stress. Job stress, also referred to as occupational or workplace stress, represents another potentially salient predictor of gambling pathology. The definition of job stress varies across publications, particularly with regard to the emphasis on causes of job stress (e.g., workload) and consequences (e.g., burnout; see Summers, DeCotiis, & DeNisi, 1995). For the purposes of the present discussion, job stress is defined as an aversive cognitive-affective experience of subjective arousal resulting from an undesirable work situation. This general definition is consistent with leading occupational stress models and can account for a broad variety of work-related stressors (see Spielberger & Vagg, 1999).

Job stress and well-being. Job stress and related variables have received considerable attention in the last three decades, not only from organizational psychologists but also from researchers across a range of health disciplines (Vandenberg, Park, DeJoy, Wilson, & Griffin-Blake, 2002). With this widespread attention has come an increased awareness of the substantial negative effects of work-related stressors. Indeed, many researchers have identified job stress as an important predictor of physical health (Bosma, Peter, Siegrist, & Marmot, 1998; Kopp, Stauder, Purebl, Jansky, & Skrabski, 2008) and of psychological well-being (Kopp et al., 2008; Virtanen et al., 2007).

Of particular relevance to the present investigation, many studies have shown a link between job stress and depressive symptoms. For instance, a qualitative review of prospective investigations on the association between these variables indicated that both

organizational stressors (e.g., role ambiguity) and specific workplace stressors (e.g., bullying) contribute to depression across a range of samples (Tennant, 2001). This relationship has been found to be particularly robust in workers from occupations that are especially stressful, such as police officers (Wang et al., 2010), nurses (Welsh, 2009), and working mothers (Goodman & Crouter, 2009). In addition, results of population-based surveys have revealed a similar pattern (Blackmore et al., 2007; Melchior et al., 2007), indicating that job stress may contribute to depressive symptoms in the general population.

Job stress and substance use. As well as contributing to the outcomes listed above, a number of studies have identified job stress as a predictor of substance use variables across a range of professions. A study investigating job stress and alcohol problems in transit operators, for instance, showed that frequency and severity of job stressors (e.g., problems with supervisors; carrying a heavy passenger load) predicted various alcohol use outcomes, including negative alcohol-related consequences and alcohol dependence (Ragland, Greiner, Yen, & Fisher, 2000). Similarly, a study on professional firefighters found that job stress predicted self-reported alcohol consumption and drinking problems (Murphy, Beaton, Pike, & Johnson, 1999). Moreover, a daily journaling study of Chinese workers also showed that alcohol use and desire to drink were greater on days that were particularly stressful (Liu, Wang, Zhan, & Shi, 2009).

Furthermore, consistent with the theoretical model of the present study, research evidence supports the hypothesis that work stress is especially likely to result in addictive behaviour among individuals with deficient coping skills. For example, Grunberg and colleagues tested the hypothesis that job stress (assessed using a brief version of the

Stress in General Scale [SIG]; Stanton, Balzer, Smith, Parra, & Ironson, 2001) would be positively associated with drinking problems only among individuals who reported escapist motives for drinking (Grunberg et al., 1999). The results of two multiple regression analyses were consistent with this hypothesis, suggesting that coping factors moderate the relationship between work stress and excessive substance use.

Job stress and problem gambling. To date, few investigations have examined the association between occupational stress and gambling pathology. Although some studies have identified gambling problems as one element of a composite measure of psychiatric symptomatology that is linked to work stress (e.g., Dewa, Lin, Kooehoorn, & Goldner, 2007; Gershon, Lin, & Li, 2002), these reports are too general to offer insights regarding the specific link between work stressors and gambling pathology. Nevertheless, two studies have examined this relationship more directly. First, Wu and Wong (2008) tested the relationship between job stress (assessed using the Job Stress Scale; Parker & Decotiis, 1983) and problem gambling (assessed using the SOGS; Lesieur & Blume, 1987) in a sample of casino employees in Macau. Consistent with findings from the substance abuse literature, these researchers reported a significant positive association between work-related stress and excessive gambling behaviours. This finding suggests that for some individuals, work stress may contribute to gambling pathology.

Another study surveyed gamblers from the general community in Ontario about their experiences in the year before starting gambling (Turner et al., 2006). Compared to recreational gamblers, problem gamblers were significantly less likely to report having had positive work-related experiences during that period. While this finding is not

specific to job stress, it does suggest that more negative work experiences may precipitate the development of gambling problems among members of the general community.

Although research on the relationship between job stress and gambling problems is limited, there are also theoretical reasons to posit a significant positive relationship between these variables. For instance, individuals experiencing high levels of work stress may be particularly focused on the possibility of leaving their current jobs; thus, the prospect of a big win that would allow financial security may be especially enticing. Indeed, problem gamblers are more likely than recreational gamblers to report that gambling offers hope for a better life (Clarke et al., 2006).

Similarly, individuals experiencing high levels of job stress may be more vulnerable to developing low self-esteem, which may in turn increase the draw of gambling activities. For example, occupational stress has been empirically linked to poor work performance (Jamal, 1985; Stewart & Barling, 1996) and low self-efficacy (Schwarzer & Hallum, 2008; Siu, Spector, Cooper, & Lu, 2005), both of which are likely to contribute to diminished self-esteem. In turn, gambling activities may be particularly appealing to individuals with low self-esteem. It has been argued that gambling offers an arena in which one's feelings of self-worth can be based exclusively on one's perceived skill as a gambler (Rosenthal & Rugle, 1994). At card tables, for instance, "one is judged solely by one's abilities as a card player...there are no other demands or expectations of you" (Rosenthal & Rugle, 1994, p. 29). Games that require little or no skill may be particularly effective in boosting self-esteem, as they may enhance one's feelings of competence and self-worth through the illusion of control (Wohl & Enzle, 2002).

An additional reason to hypothesize a link between job stress and gambling pathology concerns feelings of relative personal deprivation (Callan, Ellard, Shead, & Hodgins, 2008). Organizational psychologists have suggested that a key source of job stress is the perception of inequality in the work environment (e.g., Cropanzano, Goldman, & Benson, 2005). Empirical evidence indicates that when individuals compare their circumstances to other workers and appraise their input-output ratio as comparatively deficient, this increases job stress (Taris, Peeters, Le Blanc, Schreurs, & Schaufeli, 2001). It seems likely that individuals who are experiencing occupational stress related to perceptions of organizational inequality may be especially drawn to activities that offer the possibility of being fairly compensated. Gambling offers precisely this kind of experience, as it provides the apparent guarantee that every individual has an equal opportunity to succeed (Rosenthal & Rugle, 1994).

Recent findings support this perspective. Specifically, a study by Callan and colleagues (2008) showed that self-reported personal relative deprivation predicted problem gambling severity among undergraduate students. Moreover, in a second study, these researchers experimentally manipulated participants' beliefs about the discretionary income of similar others (i.e., other psychology students) in order to test the effect of relative personal deprivation on gambling behaviours. The researchers reported that individuals in the high relative deprivation condition were significantly more likely to risk losing their $20 compensation in a computerized gambling game. These results are consistent with the theory proposed by Rosenthal and Rugle (1994) that many gamblers feel "something is owed them, to make up for early deprivation and the 'unfairness' of the hand fate dealt them. Others speak of getting back 'their' money, as if some valued

part of the self had been abducted" (p. 33). These patterns suggest that job stress resulting from feelings of relative personal deprivation may be a salient motivating factor for gambling behaviours and thus, potentially, for gambling pathology.

Summary. Job stress has been positively associated with deleterious mental and physical health outcomes across populations (e.g., Kopp et al., 2008). Specifically, many studies have linked job stress to psychological symptoms such as depression and substance dependence (e.g., Virtanen et al., 2007), and recent studies from the gambling literature suggest that job stress may predict gambling pathology as well (Turner et al., 2006; Wu & Wong, 2008). Moreover, the fact that gambling offers benefits such as the hope of financial security and feelings of increased self-worth may make this activity particularly attractive to individuals who are experiencing high levels of occupational stress. Finally, the finding that job stressors are particularly predictive of substance use outcomes among individuals who endorse escapist reasons for drinking (Grunberg et al., 1999) implicates coping as a potential moderator of the relationship between job stress and addictive behaviours.

Coping

Although many factors affect gamblers' vulnerability to stress, a key contributor is how they choose to cope (Folkman & Moskowitz, 2004). As discussed earlier, Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) suggests that active coping skills attenuate the association between stress and addictive behaviour, whereas avoidant skills exacerbate this relationship. The present section thus focuses on the coping construct, with particular emphasis on the forms of coping included in the present investigation. Literature on the conceptualization of coping is first presented, followed by

a more specific discussion of nonreligious and religious coping strategies. In each of these sections, research is reviewed linking each of these coping variables to gambling problems and depressive symptomatology.

Conceptualization of coping. In their seminal book on stress and coping, Lazarus and Folkman (1984) defined *coping* as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). Unlike many other predictors of resilience, how one copes is considered to be a personal choice; thus, "its allure is not only as an explanatory concept regarding variability in response to stress, but also as a portal for interventions" (p. 76). As such, coping has received considerable research attention over the last three decades (Somerfield & McCrae, 2000).

While researchers have long been aware of the importance of the coping construct, the conceptualization and measurement of coping are decidedly complex tasks (Somerfield & McCrae, 2000). A recent review of the coping literature identified 400 different categories of coping responses, demonstrating how difficult it has been to identify a factor structure that is widely applicable (Skinner, Edge, Altman, & Sherwood, 2003). In the past, researchers have often classified coping responses as either adaptive or maladaptive; newer areas of research, such as religious coping, have continued this practice. However, this taxonomy has been criticized by recent reviewers, who argue that the adaptiveness of any given coping response depends on many contextual factors (Coyne & Racioppo, 2000; Folkman & Moskowitz, 2004; Skinner et al., 2003). Thus, such sweeping generalizations are likely to obscure the differential effectiveness of coping responses depending on context.

Although the dichotomous classification of coping responses as adaptive or maladaptive seems to be falling out of practice, researchers have yet to reach a consensus regarding an optimal alternative (Skinner et al., 2003). Nevertheless, some trends in categorization have allowed for comparisons across studies. First, three categories of coping that were defined by early coping researchers have maintained a prominent role in the literature: problem-focused coping, emotion-focused coping, and avoidance coping (Folkman & Moskowitz, 2004). Second, many researchers working in the area of religious coping have followed Pargament's (1997) general categorization of coping methods as either religious or nonreligious (e.g., Kim & Seidlitz, 2002, Park & Cohen, 1993). Finally, within religious coping, the dichotomous classification of coping responses as either positive or negative (i.e., adaptive or maladaptive) continues to be common practice. Thus, the five forms of coping included in the proposed investigation are (a) problem-focused coping; (b) emotion-focused coping (conceptualized as emotional approach coping, as discussed below); (c) avoidance coping; (d) positive religious coping; and (e) negative religious coping. As discussed earlier, the overarching conceptual framework for the present study is based on the stress-coping model of addiction (Wills & Hirky, 1996; Wills & Shiffman, 1985); thus, the primary guiding distinction between these coping methods in the present study is the distinction between active and avoidant coping.

The following discussion first considers how each of these five forms of coping can be conceptualized as an overall style of responding to stressors regardless of their nature, or specifically, as a set of strategies that can be used differently depending on the specifics of the stressor. The remainder of this chapter discusses each type of coping

included in the current study, focusing on definitions, research findings, and relationship to problem gambling.

Coping styles vs. coping strategies. The coping literature reflects two general perspectives on the conceptualization and measurement of coping. These perspectives approach coping as either dispositional *styles* or a collection of specific *strategies*.

Coping styles. Many researchers conceptualize coping as a personal style or disposition that manifests similarly across situations. While this approach is common in the literature, it has important limitations. In particular, although examining the link between coping styles and outcome can provide general information about the overall effectiveness of a given coping strategy, this information may be too general to be clinically relevant (Coyne & Raccioppo, 2000). In fact, there is some evidence that dispositional coping styles are only weakly related to coping methods used in daily life (Carver, Scheier, & Weintraub, 1989). Thus, many researchers have elected to study coping as a collection of specific strategies rather than as a relatively inflexible dispositional tendency.

Coping strategies. Another approach to understanding coping conceptualizes this construct as a group of strategies that can be implemented differently based on the context of a particular stressor. Because coping methods are likely to vary depending on the stressor, assessing specific coping strategies rather than general coping styles is more likely to have greater real-life applicability (Coyne & Raccioppo, 2000). There are two general methods that studies have used to assess coping strategies.

First, some coping measures ask participants to indicate the extent to which they used particular coping strategies in response to a specific stressor that they have recently

experienced (e.g., the most stressful event in the last year, or a stressful event in the last week; e.g., see Scannell et al., 2000). This method has the benefit of referring to an actual, personally salient stressor, thus increasing the correspondence between participants' survey responses and their lived experiences. However, because the instruction does not specify the context in which the coping response was generated, this procedure also allows participants to use their own discretion in choosing among a large number of stressful life events, which introduces potential confounds due to systematic variation in stressor selection (Coyne & Racioppo, 2000). Further, unknown differences across participants in imagined stressors increase error variance in the coping scores and limit the statistical precision of the findings. Moreover, although this approach specifically asks participants about coping strategies (rather than coping styles), it interprets these responses as reflecting general coping tendencies that are applicable across situations, which is often inaccurate (e.g., Shepherd & Dickerson, 2001). In the sections that follow, coping strategies that are measured using this approach are referred to as *non-contextual coping strategies*.

An alternative for assessing coping strategies is to ask participants about their responses to a particular stressor specified by the researcher (e.g., a health condition). Because studies using the latter approach tend to select stressors that are applicable to their study populations, this method has the benefit of asking about a relevant stressor while maintaining the ability to make inferences about the particular contexts in which coping and other study variables are related. For this reason, the current investigation examined coping in response to loneliness and job stress, which have been identified as

specific, salient risk factors for the development and exacerbation of gambling problems (see Life Stress section, p. 22).

Nonreligious coping: Problem-focused, emotion-focused, and avoidance coping. In an early publication, Folkman and Lazarus (1980) outlined a classic distinction between two broad categories of coping: *problem-focused coping* and *emotion-focused coping*. They defined problem-focused coping as "the management or alteration of the person-environment relationship that is the source of stress" and emotion-focused coping as "the regulation of stressful emotions" (p. 223). The basic difference between these two types of coping, according to these authors, is the target of one's coping efforts: while problem-focused coping aims to influence the external stressor, emotion-focused coping attempts to influence one's internal, affective response. In addition to these two higher-order categories, a third category, *avoidance coping*, was proposed by early coping researchers (Lazarus, 1966; Moos, 1977). Billings and Moos (1981) define avoidance coping as "attempts to avoid actively confronting the problem (for example, 'prepared for the worst,' 'kept my feelings to myself') or to indirectly reduce emotional tension" (p. 141). As discussed earlier, many authors consider problem-focused coping methods to be more active, whereas avoidance coping methods are classified under the higher order category of avoidant coping. Meanwhile, emotion-focused coping is arguably most aptly construed as a form of avoidant coping, given the item content of emotion-focused coping scales (see Folkman & Moskowitz, 2004) and the strong correlation between these two variables (Wohl et al., 2005). In the three decades since these early conceptualizations, this nomenclature has been used by

hundreds of researchers to understand and categorize coping responses (Folkman & Moskowitz, 2004).

Criticisms of emotion-focused coping. Since the introduction of this tripartite classification of coping, the constructs of problem-focused, emotion-focused, and avoidance coping have each been operationalized and measured hundreds of times. Through this process, researchers have identified major limitations in the measurement of one of these constructs in particular: emotion-focused coping. Specifically, traditional measures of emotion-focused coping are often confounded with psychopathology (Austenfeld & Stanton, 2004). For instance, such instruments typically include items that assess self-blame and distress (e.g., "blame myself for being too emotional about the situation;" "become very tense;" Endler & Parker, 1990). These traditional measures of emotion-focused coping do not clearly conceptualize this construct as either active or avoidant coping; however, as noted earlier, the item content suggests that it is most appropriately classified as avoidant coping (see Folkman & Moskowitz, 2004). Indeed, many of the items are consistent with definitions of avoidant coping (e.g., "tell myself that it is really not happening to me" and "wish that I could change what had happened or how I feel;" Endler & Parker, 1990). More active and potentially more adaptive ways of using emotions to cope (e.g., expressing one's feelings or deriving meaning from one's affective experience), are not typically assessed by traditional measures of emotion-focused coping. Not surprisingly, scores on emotion-focused coping measures tend to predict poor outcome, supporting the inaccurate perspective that using emotions to cope is inherently maladaptive.

To address the need for a more balanced measure of emotional coping, a group of researchers developed the Emotional Approach Coping Scale (EACS; Stanton, Kirk, Cameron, & Danoff-Burg, 2000). These authors define *emotional approach coping* as "processing and expressing emotions associated with stressful events" (p. 351). Unlike previous measures of emotional coping, the EACS was developed based on emotion theory, the core tenet of which is that "at the most basic level of functioning emotions are an adaptive form of information processing and action readiness that orients people to their environment and promotes their well-being" (Greenberg, 2004, p. 3). Whereas emotion-focused coping is often considered to be more avoidant than active (Folkman & Moskowitz, 2004), emotional approach coping is by definition an active coping strategy (Stanton et al., 1994). Given the increasing recognition of the benefits of processing and disclosing stressful experiences (Greenberg & Pascual-Leone, 2006), this integration of emotion theory concepts with coping research will likely elucidate the complexity and the potential benefits of more adaptive forms of emotion-focused coping. In the sections that follow, the term *emotion-focused coping* is used to refer to the traditional conceptualization of this construct, whereas the term *emotional approach coping* is used in reference to coping through emotional processing and emotional expression.

Nonreligious coping and problem gambling. Most of what is known about coping and problem gambling comes from studies examining the relationship between dispositional coping styles and gambling problems. As discussed earlier, measures that assess coping styles (rather than coping strategies) have been criticized for producing overly general results that may have limited clinical applicability (Coyne & Raccioppo, 2000). A smaller subset of studies in this area has employed non-contextual measures of

coping strategies (i.e., measures that ask about a past stressor without specifying its type or severity), which, despite being more clinically relevant, still have important limitations (see Coping Strategies section, p. 40).

Overall, the results of studies investigating the relationship between coping variables and gambling problems are consistent with the stress-coping model of addictive behaviour: problem-focused coping (a form of active coping) is associated with fewer gambling problems, whereas emotion-focused and avoidance coping (forms of avoidant coping) are associated with higher levels of gambling pathology.

Problem-focused coping and problem gambling. Although the results are somewhat mixed, the research literature suggests that problem-focused coping is inversely associated with gambling problems. This finding has been reported among adolescents (Bergevin et al., 2006; Turner, Macdonald, Bartoshuk, & Zangeneh, 2008) and university students (Lightsey & Hulsey, 2002; Nower et al., 2004). In addition, a study comparing the coping styles of Gamblers Anonymous (GA) members with those of a community sample of recreational gamblers showed that the recreational gamblers had a greater tendency to "examine problem situations and develop planful solutions" (Getty et al., 2000, p. 384).

On the other hand, a few studies have found nonsignificant associations between problem-focused coping and disordered gambling. For example, nonsignificant relationships have been reported between problem-focused coping and SOGS scores among substance abuse patients (McCormick, 1994) and recreational gamblers from the community (Turner et al., 2006). Nonsignificant results were also reported for adolescent gamblers using DSM-IV (APA, 1994) criteria for pathological gambling (Gupta et al.,

2004). Finally, a study of female gamblers in Australia showed a nonsignificant relationship between non-contextual problem-focused coping strategies and impaired control over gambling (Scannell et al., 2000).

Interestingly, the results from Shepherd and Dickerson's (2001) problem gambling study, which used a context-specific, scenario-based measure of coping, may help to explain these inconsistent results. These researchers asked female gamblers in Australia how they would cope with three hypothetical scenarios: a large gambling loss, the death of a friend, and a move to a new location to pursue a job opportunity. They assessed problem-focused coping strategies using a combination of the Planning and Active Coping subscales of the Coping Orientations to Problems Experienced (COPE; Carver et al., 1989). Although no significant findings for problem-focused coping were reported for the death and move scenarios, the authors reported a significant *positive* association between problem-focused coping and impaired control over gambling for the gambling loss scenario. To explain this counterintuitive finding, the authors point out that problem-focused coping in this instance may be maladaptive, as low-control gamblers may use such coping strategies "to maintain and finance future high levels of uncontrolled gambling" (Shepherd & Dickerson, 2001, p. 167). Certainly, the use of problem-focused coping in some contexts, such as while chasing losses, may be highly maladaptive. Once again, this highlights the importance of considering the context in which a given coping response is used in order to accurately assess its effectiveness. Indeed, previous nonsignificant findings for problem-focused coping may have been due to variation in the stressors imagined by participants when responding to dispositional coping measures (see Coyne & Racioppo, 2000). Nevertheless, it should be noted that,

overall, problem-focused coping has been inversely related to gambling pathology, thus supporting the hypothesis of a negative main effect of problem-focused coping in the present study.

As indicated earlier, it is important for studies on coping and problem gambling to assess general emotional well-being as well as gambling-related outcomes. However, empirical literature examining the relationship between problem-focused coping and depression among gamblers is limited. The only study that reported on this relationship was conducted by Getty and colleagues (2000). These researchers examined depression and coping styles among GA members and recreational gamblers from the community and found that problem-focused coping was negatively associated with depressive symptoms in their sample, again supporting this hypothesis in the present investigation.

Emotion-focused coping and problem gambling. The relationship between emotion-focused coping and gambling problems has been more consistent in the literature. Positive relationships between these variables have been reported among adolescents (Bergevin et al., 2006; Gupta et al., 2004; Turner et al., 2008), male university students (Lightsey & Hulsey, 2002; Nower et al., 2004), and recreational gamblers from the community (Scannell et al., 2000; Turner et al., 2006). Additionally, a study on problem gambling and help-seeking among university students showed that emotion-focused coping was associated with (a) perceptions of gambling behaviour as threatening and uncontrollable; (b) negative gambling outcome expectancies; and (c) increased DSM-IV pathological gambling symptomatology at 6-month follow-up (Wohl et al., 2005).

Shepherd and Dickerson (2001) report that, like problem-focused coping, findings for emotion-focused coping differed depending on stressor. They assessed emotion-focused coping using an amalgam of two COPE (Carver et al., 1989) subscales: the Focus on and Venting of Emotions subscale and the Seeking Social Support – Instrumental subscale. The results showed that emotion-focused coping responses to the gambling loss scenario were positively associated with impaired control over gambling, consistent with the notion that emotion-focused coping is inherently maladaptive (see Stanton et al., 1994); however, this relationship was nonsignificant for the other two scenarios (i.e., death of a friend and move to a new city). Thus, once again, these findings point to the value of assessing the context in which a particular coping response occurs (Coyne & Racioppo, 2000).

Emotional approach coping and problem gambling. Importantly, the findings linking emotion-focused coping to problem gambling reviewed above are based exclusively on measures that have been criticized as being confounded with psychopathology (Stanton et al., 1994; see Criticisms of Emotion-Focused Coping section, p. 43). Because the measures used to assess emotion-focused coping in these investigations do not generally assess healthy forms of emotional coping, these findings cannot speak to the associations between excessive gambling and potentially adaptive forms of emotional coping, such as emotional approach coping.

Research on emotional approach coping is still in its infancy. Although this construct has the potential to inform interventions for a number of psychological conditions (see Austenfeld & Stanton, 2004), it has not yet been examined in relation to gambling pathology, and it is premature to make claims regarding its overall efficacy.

The findings reported to date suggest that a large number of factors moderate the degree to which emotional approach coping is effective at mitigating the negative impacts of stress (Austenfeld & Stanton, 2004). The complexity of these findings speaks to the need for more research on the relationship between this construct and specific forms of psychopathology, such as problem gambling.

Despite the complexity of these findings, however, some tentative hypotheses are offered regarding the role of emotional approach coping in the context of the proposed stress-coping model. Because researchers have yet to investigate how this variable relates to problem gambling, evidence for these hypotheses comes from studies on related constructs in gambling populations. For example, a few studies have investigated the association between alexithymia and disordered gambling (Lumley & Roby, 1995; Parker, Wood, Bond, & Shaughnessy, 2005). Alexithymia has been defined as "a difficulty in describing or identifying feelings, the use of an externally-oriented, reality-based cognitive style ('la pensee operatoire'), difficulty distinguishing between bodily sensations and feelings, and an inhibited inner emotional and fantasy life" (Eastwood, Cavaliere, Fahlman, & Eastwood, 2007, p. 1037). Alexithymia, then, is essentially the inability to engage in emotional processing, which is a key component of emotional approach coping (Stanton et al., 2000).

In support of a link between emotional approach coping and gambling symptoms, previous literature has suggested a positive association between alexithymia and disordered gambling. A study on pathological gamblers from the general community in Ontario found that alexithymia was positively linked to greater endorsement of DSM-IV (APA, 1994) symptoms of pathological gambling (Toneatto et al., 2009). Similar results

have been reported among university students based on scores on the SOGS (Lumley & Roby, 1995; Parker et al., 2005). In contrast with this finding, however, a recent study of outpatient problem gamblers found that emotional awareness was positively associated with gambling problems (Gomes & Pascual-Leone, 2009). The reason for this finding is unclear. Although it seems to suggest that emotional awareness may be maladaptive, the authors offer an alternative explanation. Specifically, because their study employed a self-report measure of gambling problems (the Problem Gambling Severity Index [PGSI]; Wynne, 2003), they surmised that higher problem gambling scores may have reflected participants' recognition of their gambling problems. This conjecture supports the inclusion of a behavioural measure of gambling outcome in the present study (i.e., the Gambling Timeline Followback [G-TLFB]; Weinstock et al., 2004). Alternatively, this finding may also relate to their use of a treatment-seeking sample. Specifically, among treatment-seekers, severe gambling problems may be associated with greater motivation to engage in therapy, which may in turn facilitate the development of emotional awareness. In other words, gambling severity among treatment-seekers may lead to increased emotional awareness through the intense therapeutic engagement of severe gamblers. If this is the case, studies using community samples may yield different results.

Boredom proneness is another emotional construct linking emotional approach coping and problem gambling. Early psychodynamic theorists viewed boredom as an "inability to experience one's own feelings directly and intensely" (Greenson, 1953, p. 518). Indeed, research findings indicate that boredom is associated with low levels of emotional awareness (Eastwood et al., 2007), suggesting a limited capacity for emotional approach coping. Thus, studies linking boredom proneness to greater problem gambling

severity (Blaszczynski et al., 1990; Kuley & Jacobs, 1988) provide additional evidence for an inverse relationship between emotional approach coping and gambling outcomes. Moreover, because the goal of emotion-focused therapy is to help clients use emotional approach coping skills (see Greenberg, Rice, & Elliott, 1993), the demonstrated effectiveness of this therapy for depression (Paivio & Greenberg, 1995) suggests that this form of coping may predict fewer depressive symptoms among gamblers and problem gamblers.

Avoidance coping and problem gambling. Like the findings for emotion-focused coping and gambling pathology, a positive association between avoidance coping and gambling problems has been consistently reported across studies. Only one study found a nonsignificant relationship between these variables (Lightsey & Hulsey, 2002). The fact that findings for avoidance coping parallel findings for emotion-focused coping is perhaps not surprising, given that these variables are highly correlated with one another (Wohl et al., 2005).

The association between avoidance coping and problem gambling has been demonstrated in adolescents (Bergevin et al., 2006; Gupta et al., 2004; Turner et al., 2008), male junior college students (Nower et al., 2004), and gamblers from the community (Getty et al., 2000; Scannell et al., 2000; Turner et al., 2006). This relationship was also documented in a sample of substance abuse patients (McCormick, 1994) and in a mixed sample of problem gambling outpatients, university students, and secondary school teachers in Australia (Farrelly, Ffrench, Ogeil, & Phillips, 2007). Moreover, a study examining help-seeking among university student gamblers indicated that, like emotion-focused coping, avoidance coping was positively correlated with (a)

perceptions of gambling as threatening and uncontrollable; and (b) increased gambling pathology at 6-month follow-up (Wohl et al., 2005).

Shepherd and Dickerson (2001) reported that avoidance coping, which was assessed using the Mental Disengagement and Denial subscales of the COPE (Carver et al., 1989), showed a positive association with impaired control over gambling across all three hypothetical stress scenarios (i.e., gambling loss, death of a friend, and move to a new city). The authors concluded that, unlike problem-focused and emotion-focused coping, the use of avoidance coping may be more consistent across scenarios. In other words, individuals who use avoidance coping in response to one stressor are likely to display this pattern when faced with other stressors as well. As Shepherd and Dickerson (2001) point out, avoidance coping may be more strongly linked to personality factors than active forms of coping. Their findings also suggest that avoidance coping has a similar, maladaptive effect across stressors.

Finally, the study by Getty and colleagues (2000) comparing GA members to recreational gamblers from the community showed that avoidance coping was positively associated with depressive symptoms. This finding supports the hypothesis of a positive link between avoidance coping and depression in the current investigation.

Nonreligious coping methods as moderators. Because the stress-coping model of addictive behaviour (Wills & Hirky, 1996; Wills & Shiffman, 1985) suggests that coping methods moderate the link between stress and addictive behaviour, the current section reviews evidence supporting these hypothesized interaction effects. Specifically, much of the evidence presented here supports the hypothesis that active coping strategies (i.e., problem-focused and emotional approach coping) attenuate the association between

stress and outcome, whereas avoidant coping strategies (i.e., emotion-focused and avoidance coping) exacerbate this relationship. It should be noted, however, that most of the studies reviewed assess general forms of life stress and coping. Specifically, these investigations measure general life stress (rather than specific stressors) and measure coping styles or non-contextual coping strategies (rather than context-specific coping strategies, such as those assessed in the current study). In addition, due to limited evidence pertaining to gambling problems, this discussion draws primarily from other sources.

Problem-focused coping. The stress-coping model of addictive behaviour (Wills & Hirky, 1996; Wills & Shiffman, 1985) hypothesizes that active coping strategies such as problem-focused coping attenuate the link between stress and addictive behaviours. Indeed, as discussed earlier (see Theory and Conceptual Framework for the Present Study, p. 9), some studies from the substance abuse literature support this hypothesis. For example, problem-focused coping attenuated the relationship between stress and alcohol consumption in a community sample of 7th and 8th grade students (Wills, 1985) and among university students (Hussong, 2003). On the other hand, there have also been reports of nonsignificant findings in this regard (e.g., Frone & Windle, 1997). Although Lightsey and Hulsey (2002) reported a nonsignificant interaction between problem-focused coping and life stress in predicting gambling pathology, this finding is perhaps best accounted for by the methodological limitations of their design. As indicated earlier, the present investigation sought to address these limitations and to reassess this hypothesis.

The moderating effect of problem-focused coping on the link between stress and depression has yet to be investigated. Findings from more general populations show some support for this hypothesis (e.g., Aldwin & Revenson, 1987; Terry, Mayocchi, & Hynes, 1996), although once again, the literature is somewhat mixed (e.g., Gonzales, Tein, Sandler, & Friedman, 2001).

Emotional approach coping. Like problem-focused coping, emotional approach coping is considered to be an active coping strategy (Stanton et al., 1994). Thus, in the context of the stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985), it would be hypothesized to weaken the link between stress and addictive behaviour. Perhaps because it has only recently been introduced to the coping literature, emotional approach coping has not yet been investigated as a moderator of this relationship. Nevertheless, studies examining the moderating effects of related constructs on the association between stress and outcome provide indirect support for this hypothesis.

For instance, trait emotional intelligence (TEI), which is defined as affect-related abilities, dispositions, and behavioural tendencies that are assessed through self-report (Petrides & Furnham, 2001), has been investigated as a moderator of the stress-outcome relationship among university students (Mikolajczak, Olivier, & Clementine, 2006). In this study, TEI attenuated the relationship between examination stress and self-reported health and depression. Similar findings have been reported in regard to experimentally-induced stressful situations. Specifically, one study found that under stress, individuals high in TEI reported less mood deterioration and less cortisol secretion (a stress hormone) than individuals low in TEI (Mikolajczak, Roy, Luminet, Fillee, & Timary, 2007); these differences were not significant under conditions of low stress, thus

supporting the moderation hypothesis. Because TEI is presumed to facilitate emotional processing (see Austenfeld & Stanton, 2004), these findings suggest that this coping strategy may similarly attenuate the relationship between stress and negative sequelae such as addictive behaviours and depressive symptoms.

Nevertheless, as indicated previously (see Emotional Approach Coping and Problem Gambling section, p. 48), the efficacy of emotional approach coping is dependent on a wide range of moderators, most of which have yet to be identified (Austenfeld & Stanton, 2004). Thus, not all studies have found that emotional approach coping attenuates the link between stress and outcome variables. For instance, Lowe and colleagues (Low, Stanton, Thompson, Kwan, & Ganz, 2006) reported that emotional approach coping was more highly associated with outcomes among female cancer patients at *lower* levels of stress. Because even relatively low stress levels among cancer patients are likely to be high in absolute terms, this finding points to the possibility that the moderating influence of emotional approach coping may be nonlinear, exerting the strongest attenuating effects at moderate stress levels. This finding is consistent with the observation that emotional processing is most effective at a moderate range of affective arousal (Greenberg et al., 1993). It also points to the need for additional research to more fully understand the complex role of emotional approach coping in specific populations The evidence of a moderating role for emotional approach coping is therefore necessarily tentative.

Avoidance coping. Finally, avoidance coping (evidently a form of avoidant coping in the context of the stress-coping model; Wills & Hirky, 1996; Wills & Shiffman, 1985) is expected to strengthen the link between stress and outcome in the proposed model.

Once again, as discussed earlier, studies from the substance abuse literature have shown some mixed support for this hypothesis (see Theory and Conceptual Framework for the Present Study, p. 9). As of yet, however, the interaction between stress and avoidance coping in predicting gambling behaviours has not been directly investigated. Nevertheless, Lightsey and Hulsey (2002) did examine the interaction between stress and emotion-focused coping in predicting disordered gambling; given the overlap between emotion-focused coping and avoidance coping (see Folkman & Moskowitz, 2004; Wohl et al., 2005), these findings are relevant to hypotheses regarding the latter. Specifically, Lightsey and Hulsey showed that the association between stress and gambling problems was stronger among low impulsive males who reported using higher levels of emotion-focused coping. Because these authors did not examine the moderating effect of avoidance coping directly, however, more research is needed to examine this effect.

Religious Coping

Religious coping: Positive and negative religious coping. The current section reviews the literature on positive and negative religious coping, which were included in the present investigation as additional exploratory analyses and examined in the context of the proposed stress-coping model. First, the conceptualization of these constructs is considered, followed by a discussion of their relevance to the study of problem gambling. Due to the limited evidence linking spiritual and religious variables to gambling pathology, this review draws on other literature to support the current hypotheses.

Conceptualization of religious coping. Spirituality and religion are generally considered to be separate but overlapping constructs. In particular, whereas spirituality is often considered to be more of an individual pursuit, religion is thought to be more

communal (Michael, Crowther, Schmid, & Allen, 2003; Miller & Thoresen, 1999). Koenig, McCullough, and Larson (2001) offer the following distinction:

> Religion is an organized system of beliefs, practices, rituals, and symbols designed (a) to facilitate closeness to the sacred or transcendent (God, higher power, or ultimate truth/reality) and (b) to foster an understanding of one's relationship and responsibility to others in living together in a community…Spirituality is the personal quest for understanding answers to ultimate questions about life, about meaning, and about relationship to the sacred or transcendent, which may (or may not) lead to or arise from the development of religious rituals and the formation of community. (p. 18)

While spirituality can inspire religious participation, religious participation can also facilitate the development of spirituality. Thus, religion and spirituality are intertwined and mutually influential (Michael et al., 2003).

In early studies, spirituality and religion were assessed as a unitary construct, often using a single item (e.g., Folkman & Lazarus, 1980). While these studies provided some preliminary evidence linking these variables to well-being, the measures used in these investigations were too crude to specify the meaning of these relationships (Ano & Vasconcelles, 2005; Pargament, Koenig, & Perez, 2000). Moreover, because all aspects of spirituality and religion were often grouped together, mixed results were common, leading one early meta-analytic author to surmise that these variables "reflect a multidimensional phenomenon that has mixed positive and negative aspects" (Bergin, 1983, p. 170).

Recognizing the need for more sophisticated conceptualizations in this area, Pargament and colleagues began to investigate the more specific construct of religious coping (Pargament, 1990; Pargament et al., 1988). *Religious coping* has been defined as "the use of religious beliefs or behaviours to facilitate problem-solving to prevent or alleviate the negative emotional consequences of stressful life circumstances" (Koenig, Pargament, & Nielsen, 1998, p. 513). Thus, the construct of religious coping is more precise than religiosity, as it represents the use of religion to cope with stress. Pargament and colleagues include spirituality as an aspect of religious coping, as it is "the key function of religion – the effort to find, sustain, and transform a relationship with the sacred" (Pargament et al., 2000, p. 520).

Pargament and colleagues have since developed two widely-used measures of religious coping, the Brief RCOPE (Pargament, Smith, Koenig, & Perez, 1998) and the RCOPE (Pargament et al., 2000).[2] These measures divide religious coping strategies into two broad, psychometrically distinct categories that these authors refer to as *positive religious coping* and *negative religious coping*. Positive religious coping is defined as "an expression of a sense of spirituality, a secure relationship with God, a belief that there is meaning to be found in life, and a sense of spiritual connectedness with others" (Pargament et al., 1998, p. 712). Examples of positive religious coping include benevolent religious reappraisals (e.g., reappraising a stressor as God's desire to make one stronger) and collaborative religious coping (e.g., working together with God to achieve a particular goal).

Negative religious coping, on the other hand, is defined as "a less secure relationship with God, a tenuous and ominous view of the world, and a religious struggle

[2] The acronym RCOPE is not defined in the scale development articles.

in the search for significance" (Pargament et al., 1998, p. 712). Examples of negative religious coping are punishing God reappraisals (e.g., appraising a stressor as a punishment from God for one's sins) and spiritual discontent (e.g., questioning God's love or support).

Using Pargament's definitions of positive and negative religious coping, Ano and Vasconcelles (2005) meta-analysed 49 studies examining the association between religious coping and psychological adjustment to stress. The findings revealed that positive and negative forms of religious coping were differentially associated with outcome. More specifically, these researchers reported that people who engaged in higher levels of positive religious coping showed more positive outcomes (e.g., post-traumatic growth) and less negative outcomes (e.g., depression, anxiety). They also found that people who engaged in more negative religious coping had more negative outcomes; however, positive outcomes were unaffected. The authors surmised that "although negative religious coping may be harmful, it does not necessarily prevent people from experiencing positive outcomes" (p. 474). Nevertheless, the overall findings seem to substantiate the classification of religious coping strategies as having both adaptive (positive) and maladaptive (negative) aspects, which helps to explain some of the mixed results reported in earlier reviews (e.g., Bergin, 1983).

Spiritual versus religious coping. The current discussion has focused exclusively on research relating to religious coping, without consideration of spiritual coping variables. In fact, in the extant literature, spiritual coping is seldom investigated outside the context of religious coping. While some coping scales include elements of spiritual coping without referring to religion per se (e.g., the Spiritual Connection subscale of the

full RCOPE; Pargament et al., 2000), spiritual coping is typically studied as one aspect of religious coping. However, given the conceptual and empirical distinction between religion and spirituality outlined earlier, spiritual coping would seem to be an important construct in its own right, rather than one component of religious coping. Moreover, a growing number of individuals self-identify as "spiritual but not religious" (see Saucier & Skrypinska, 2006); for these individuals, religious coping measures are arguably inappropriate, as they imply a religious affiliation.

An alternative perspective, however, is that all spiritual coping necessarily occurs within a religious framework (Wong & Vinsky, 2009). Indeed, Wong and Vinsky assert that even individuals in North America who self-identify as "spiritual but not religious" do implicitly assume a form of spirituality that is heavily influenced by a particular religious tradition, usually the tradition of the dominant culture. They argue that the very concept of "spiritual but not religious" is a manifestation of the pervasive Christian ideology in North American culture, such that when examined in isolation, the spiritual beliefs espoused by Christianity may seem divorced from any religious tradition. Applying this argument to the issue of spiritual and religious coping, it may be considered appropriate that spiritual coping is typically examined in the context of religious coping scales.

Criticisms of the religious coping construct. The concept of religious coping is still relatively young, and thus certain conceptual issues have yet to be addressed. For instance, the crude distinction between positive (adaptive) and negative (maladaptive) forms of religious coping can be problematic, as the effectiveness of a given coping strategy inevitably depends on context (Lazarus & Folkman, 1984). The adaptiveness of

these coping methods is likely more complicated than their simple labels suggest. For example, one study showed that negative religious coping may predict long-term gains, despite being associated with poor psychological adjustment in the short-term (see Pargament, 2002). As the field of religious coping continues to mature, a more nuanced taxonomy is developing (see Pargament et al., 2000), suggesting that this dichotomous classification will eventually fade from use.

Another important consideration for the study of religious coping is the variation in beliefs and traditions across diverse spiritual and religious groups. At present, most religious coping scales are limited by their reliance on Judeo-Christian terminology. To address this issue, some authors have amended the instructions of common religious coping measures to encompass a broader conceptualization of God (e.g., Horstmann & Tonigan, 2000); the current study adopted this practice as well (see Methods section, p. 84). Although this adaptation may be appropriate for some individuals (e.g., certain individuals who self-identify as "spiritual but not religious"), the validity of these measures for many world religions remains questionable at best. Thus, the current state of knowledge regarding religious coping is currently limited by the use of Judeo-Christian measures. The development of more comprehensive measures of religious coping is essential to the validity of future research in this area.

Religious coping and substance use. In the past few decades, there has been a growing interest in the role of spiritual and religious factors in predicting substance abuse (Geppert, Bogenschut, & Miller, 2007). This interest was initially inspired by the widespread influence of Alcoholics Anonymous (AA), which has historically adopted the position that addictive behaviours arise from an unmet need for spiritual fulfillment (Oei

& Gordon, 2008). Since then, many studies have investigated spirituality and religion in the context of AA and other 12-step programs. Overall, research evidence suggests that substance use and abuse is inversely associated with positive religious coping and is positively associated with negative forms of religious coping.

Most of these studies have focused on alcohol consumption. For instance, among AA members, length of abstinence from alcohol use was positively associated with working collaboratively with God (Horstmann & Tonigan, 2000). Similarly, positive religious coping was negatively related to alcohol use in a sample of college students (Menagi, Harrell, & June, 2008). In addition, among outpatient substance abuse patients, positive religious coping was found to increase in the first six months of recovery effort (Robinson, Cranford, Webb, & Brower, 2007). It should be noted, however, that nonsignificant results have been reported as well. For example, Fallot and Heckman (2005) examined the relationship between religious coping and psychiatric outcomes among female trauma survivors. Although they found some support for an association between positive religious coping and general psychiatric symptomatology, the relationship between positive religious coping and substance abuse was not significant. Taken as a whole, however, the literature suggests that positive religious coping predicts more adaptive substance abuse outcomes.

Conversely, negative religious coping tends to predict higher levels of substance use and abuse. For example, Conners and colleagues (2006) examined negative religious coping among low-income substance-dependent mothers in a residential treatment program. The authors reported that negative religious coping was associated with higher levels of psychopathology, including more symptoms of PTSD and depression. In

another study, Johnson, Sheets, and Kristeller (2008) used an amalgam of items from the Brief RCOPE (Pargament et al., 1998) and the RCOPE (Pargament et al., 2000) to assess religious struggle in a sample of college students. They reported that religious struggle showed a positive association with frequency of alcohol problems. However, nonsignificant results between negative religious coping and substance use variables have been reported as well. For example, a study of AA members revealed a nonsignificant association between abstinence and negative religious coping (Horstmann & Tonigan, 2000). Once again, however, the overall pattern of results suggests that negative religious coping predicts poor substance abuse outcomes.

Religious coping and problem gambling. Although seldom discussed in the psychological literature, the link between gambling and spirituality or religion is well documented in anthropological and sociological sources (Binde, 2007). These sources observe that contemporary gambling is derived from the ancient practice of divination, which involved ritualistic casting of lots or dice to communicate with a higher power and to make meaning out of otherwise inexplicable life events (Reith, 1999). It was not until the Renaissance that this practice began to wane in the Western world, as the notion of divine intervention became difficult to reconcile with the emerging scientific epistemology (Lawson, Graham, & Baker, 2007; Reith, 1999). As Western culture has become increasingly secularized, gambling and religion have become segregated, largely through the institutionalization of games of chance (Binde, 2007). Nevertheless, current scientific research suggests that the ancient roots of gambling may be reflected in the motivations of modern gamblers.

Positive religious coping and problem gambling. Several authors have suggested that, even in contemporary Western society, gambling and religion serve a similar purpose by providing hope when one's current life stressors appear to be insurmountable (Clarke et al., 2006). Not surprisingly, the hope of winning tends to correlate with excessive gambling behaviours (Ariyabuddhiphongs & Chanchalermporn, 2007; Boughton & Brewster, 2002). Moreover, a New Zealand study indicated that problem gamblers were over three times as likely as nonproblem gamblers to report that gambling offered them hope for a better life (Clarke et al., 2006). Binde (2007) points out that jackpots represent more than the opportunity for material consumption; rather, winners are generally more interested in using their winnings for spiritual pursuits such as personal growth and peace of mind (Gudgeon & Stewart, 2001).

Gambling and religion also share the capacity to offer a sense of meaning or purpose in life (Grunfeld, Zanganeh, & Diakoloukas, 2008; Reith, 1999). For instance, Wood and Griffiths (2007) conducted a qualitative investigation on the role of gambling in the lives of problem gamblers in Australia. Using a structured grounded theory approach, they found that many participants reported gambling as a way of "filling the void" (p. 113). This finding is consistent with results from a community survey in Ontario, which found that a sense of aimlessness in life often preceded the onset of gambling problems (Turner et al., 2006). These results suggest that excessive gambling behaviours may counteract a sense of meaninglessness experienced by many problem gamblers. Interestingly, the results of a study on magical thinking among gamblers suggest that gamblers who endorse spiritual/religious cognitions regarding gambling (e.g., "Sometimes I get spiritual help when gambling"; "I have a ritual which I must carry

out when I'm gambling") are more likely to gamble excessively (Joukhador, Blaszczynsky, & Maccallum, 2004). Together, these findings support Binde's (2007) conjecture that "gambling to some extent fills the void, in the realm of the mystical and transcendental, left by the decline of official religion in secularized Western societies" (p. 152).

The theory that gambling and other addictive behaviours fill an existential void is also consistent with the notion that spiritual growth facilitates addictions recovery (e.g., Horstmann & Tonigan, 2000). This perspective has been long held by advocates of 12-step groups such as Gamblers Anonymous (GA), which emphasize both personal responsibility and spiritual growth as essential components of recovery (Oei & Gordon, 2008). The central tenet of this theory is that when people lack spiritual fulfillment, they repeatedly turn to addictive behaviour as a temporary solution; therefore, to overcome an addiction, people must acknowledge their deeper spiritual needs and satisfy them in a more adaptive, sustainable way. A recent study supported the applicability of this theory to problem gamblers by showing that belief in a Higher Power and belief in God were both significantly associated with gambling abstinence in a sample of GA members (Oei & Gordon, 2008). The finding that positive religious coping has been linked to depression (Ano & Vasconcelles, 2005) suggested that these variables would likely be associated in the present study as well. Thus, taken together, the literature presented here supports the present study's hypothesis that positive religious coping would predict less problem gambling and gambling behaviours, as well as fewer depressive symptoms.

Negative religious coping and problem gambling. The scant literature examining spiritual and religious variables among problem gamblers has not yet addressed the role

of negative religious coping in this population. However, other coping characteristics of problem gamblers suggest that negative religious coping may be positively associated with disordered gambling. For instance, gambling problems have been linked to self-blame, which is a salient aspect of punishing God reappraisals (Pargament et al., 2000). Indeed, a study of female electronic gaming machine players in Australia (Scannell et al., 2000) found that lower self-reported control over one's gambling behaviours was associated higher levels of self-blame. If problem gamblers feel they deserve to be blamed, they may be more likely to use punishing God reappraisals in response to stressful life events.

In addition, grappling with the possibility that one is being punished or abandoned by God seems likely to create feelings of rejection and loneliness, which may be temporarily alleviated by the social contact offered by some forms of gambling (Brown & Coventry, 1997; Dixey, 1987). Negative religious coping may also increase one's need to feel redeemed in the eyes of God. For some people, gambling may represent an opportunity for God to intervene and offer redemption in the form of a big win. In addition, the act of gambling may allow problem gamblers to dissociate from aversive thoughts and feelings (Beaudoin & Cox, 1999; Farrelly et al., 2007), thus alleviating the distress resulting from negative religious coping.

Thus, the literature reviewed here, along with results from studies linking negative religious coping to higher levels of depression among substance abuse patients (Conners et al., 2006), lends support to the hypothesis that negative religious coping predicts pathological outcomes in gambling populations. Nevertheless, due to the limited empirical work in this area, this hypothesis was necessarily tentative.

Religious coping strategies as moderators. Although the moderating role of positive religious coping has yet to be examined in relation to substance abuse or problem gambling, studies investigating this variable in relation to more general psychological outcomes provide indirect support for this hypothesis.

For example, Bjorck and Thurman (2007) conducted an investigation on religious coping and psychological functioning among Protestant church members. These authors found support for the hypothesis that positive religious coping attenuates the link between life stress and decreased psychological functioning. In another study, Krause (1998) conducted a prospective investigation of mortality predictors among older adults in the United States. Specifically, this study examined the moderating role of positive religious coping on the link between stress concerning personally meaningful social roles (e.g., one's identity as a parent) and mortality. The results showed that the relationship between stress and mortality was attenuated for individuals reporting greater use of positive religious coping.

Conversely, studies have found partial support for the hypothesis that negative religious coping exacerbates the link between stress and outcome. Although the study by Bjorck and Thurman (2007) outlined above revealed nonsignificant results for this effect in their Protestant sample, Lonczak and colleagues (Lonczak, Clifasefi, Marlatt, Blume, & Donovan, 2006) reported significant results. Specifically, religious pleading (a component of negative religious coping; Pargament et al., 2000) strengthened the relationship between stress and depression in a sample of prison inmates. The interaction between negative religious coping and stress has yet to be examined in relation to problem gambling; however, the evidence cited above provided tentative support for the

hypothesis that negative religious coping would exacerbate the link between stressors and outcome variables in the current study.

Summary. Coping is a complex, multidimensional construct (Skinner et al., 2003). Researchers have encountered considerable challenges in the conceptualization and measurement of this important variable, and these challenges are reflected in the problem gambling literature as well. Indeed, most of the studies reviewed in this section are limited by their reliance on measures of coping styles rather than coping strategies, on their use of confounded measures of emotion-focused coping, and on their exclusive focus on nonreligious forms of coping.

Despite these limitations, the literature permits a few tentative conclusions regarding the link between coping and gambling problems. For instance, problem-focused coping methods tend to be empirically associated with lower levels of gambling pathology; conversely, avoidance coping methods tend to be related to higher levels of disordered gambling. Additionally, the finding that problem gambling is associated with alexithymia (e.g., Toneatto et al., 2009) supports the current hypothesis of an inverse association between emotional approach coping and gambling outcomes. Moreover, findings linking religious coping variables to outcomes in the substance abuse literature support the hypothesis that positive religious coping may predict lower levels of gambling pathology, whereas the reverse may hold for negative religious coping.

Meanwhile, the literature examining the hypothesized interaction effects is limited. Moreover, like the studies examining the main effects of coping on problem gambling, the few published reports available suffer from methodological limitations (e.g., Lightsey & Hulsey, 2002). Nevertheless, the theoretical and empirical literature

reviewed in this section permits tentative hypotheses in this regard. In particular, the active forms of coping included in the present stress-coping model (i.e., problem-focused and emotional approach) were hypothesized to attenuate the relationships between stressor and outcome variables in the present study; conversely, avoidant coping was hypothesized to exacerbate these relationships. Finally, positive and negative religious coping were expected to attenuate and strengthen these links, respectively.

Methodological Contributions of the Current Study

A key objective of the present study was to investigate stress, coping, and outcomes using improved measures in order to yield more valid and interpretable results. Previous studies on coping and problem gambling have suffered from a number of measurement issues in particular. The current section discusses how these issues were addressed in the present study.

First, most previous studies on coping and problem gambling have used very general measures of stress and coping. In other words, they used global measures of life stress and general coping styles, rather than assessing levels of specific stressors and coping with these stressors. As such, these studies essentially assessed general dispositional coping styles of gamblers and problem gamblers. The use of such nonspecific measures is likely to result in measurement error and to constrain the clinical applicability of the results (see Coyne & Racioppo, 2000). Thus, in accordance with Lazarus and Folkman's (1984) conceptualization of stress and coping, individuals' coping processes are contingent upon the specific type of stressor that is encountered. Hence, the current investigation studied and assessed specific stressor variables among problem gamblers. The first stressor of interest was loneliness, as it has been most

consistently associated with problem gambling symptoms (e.g., Ste-Marie, Gupta, & Derevensky, 2006). Job stress was included as the second stressor variable based on previous literature suggesting a link between occupational stress and problem gambling (Wu & Wong, 2008). Further, to assess context-specific coping strategies, coping variables were measured in relation to specific instances of loneliness and job stress recalled by the participants.

Second, previous studies investigating the link between emotion-focused coping and gambling pathology have employed traditional measures of emotion-focused coping (e.g., Bergevin et al., 2006; Gupta et al., 2004; Lightsey & Hulsey, 2002). However, such measures have been denounced as conceptually unclear and confounded with pathological processes (Stanton et al., 1994; see Criticisms of Emotion-Focused Coping, p. 43). To address this important limitation, the current study employed a measure of emotional approach coping (Stanton et al., 2000), which assesses potentially adaptive ways of using emotional information to cope with stressors.

Third, the present study sought to address issues related to the measurement of gambling outcomes. Previous studies employing general population samples to study problem gambling have primarily used the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) to assess gambling pathology. Although the SOGS is commonly used in the literature, its use with general population samples is not without challenges, as the measure is designed to assess symptoms among individuals with clinical levels of problem gambling. To address the latter issue, the current study assessed problem gambling using the Problem Gambling Severity Index (PGSI; Wynne, 2003), which is designed for use with general, rather than clinical populations.

An additional issue related measurement of gambling outcomes concerns the use of common measures such as the SOGS (Lesieur & Blume, 1987) and the PGSI (Wynne, 2003). Although such problem gambling symptom measures are essential to research on gambling pathology, such self-report measures may be confounded with social desirability, as the items have considerable face-validity (Kuentzel, Henderson, & Melville, 2008). Thus, to address the possibility of socially desirable responding, the Gambling Time-Line Follow-Back (G-TLFB; Weinstock, Whelan, & Meyers, 2004) was administered as a second gambling outcome measure. The G-TLFB assesses gambling behaviours rather than symptoms and has been shown to be less affected by social desirability (Kuentzel et al., 2008).

Fourth, the current study sought to expand the typical battery of outcome measures beyond the assessment of gambling variables. Most previous studies on coping and problem gambling have not examined the associations between coping variables and other indicators of mental health. Thus, to explore the contribution of model variables to a broader range of outcomes, the Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996) was employed as a third outcome variable. In addition to facilitating the assessment of more comprehensive outcomes, the inclusion of depressive symptoms provides a point of comparison. If different patterns of results are observed for depressive symptoms than for gambling outcomes, this can help to distinguish the effects of coping on gambling problems from the effects of coping on emotional well-being. Thus, to address previous limitations in outcome measurement, three outcome variables were assessed in the present study: problem gambling symptoms, gambling behaviours, and depressive symptoms.

A final methodological contribution of the present study relates to the measurement of religious coping variables. Such variables are not clearly captured by the forms of coping typically assessed in problem gambling research. Thus, the potential effects of these variables on gambling pathology remains unexamined. Given the association between religious coping and other addictive behaviours (e.g., Conners, Whiteside-Mansell, & Sherman, 2006; Johnson et al., 2008) and the fact that problem gamblers often view gambling a source of hope and meaning (e.g., Clarke et al., 2006), it is important for researchers to identify spiritual and religious coping methods that may serve as risk or protective factors for problem gambling. To help address this gap in the literature, the present study included additional exploratory analyses to examine the contribution of religious coping in the context of the stress-coping model.

In sum, the present investigation sought to extend and improve on previous research designs using enhanced methodology. In addition to employing an established multivariate model of stress and coping, this study used improved measures of stress, coping, and outcomes. It was hoped that the foregoing methodological improvements would pave the way for more specificity and clinically applicability in future research on coping and problem gambling.

Potential Clinical Contributions of the Current Study

Previous research on coping and problem gambling has been too general to directly support clinical applications. Thus, the current project sought to explore a range of more specific stress and coping processes with the objective of increasing the clinical and practical utility of future research. The purpose of the current study was not to inform clinical interventions directly, but to suggest promising new directions for research in this

area. Key stress, coping, and outcome variables were selected for their potential relevance to clinical work with at-risk and problem gamblers. In turn, it was hoped that future research may corroborate and clarify the current findings, thus moving the field toward greater clinical applicability.

Hypotheses

Exploratory hypotheses for the proposed stress-coping model. The current section contains the hypotheses for the proposed model. The model was tested six times: once for each stressor variable (i.e., loneliness and job stress) in relation to each of the three outcomes (i.e., problem gambling symptoms, gambling behaviours, and depressive symptoms). For clarity, these models are thus numbered one through six in the lists that follow. Hypotheses regarding main and interaction effects of the stress-coping model are first presented, followed by hypotheses regarding main and interaction effects of religious coping variables. As noted earlier, six multiple regressions were conducted to examine the religious coping variables in the context of each of the six models.

Main effects. The hypothesized main effects of the two stressor variables and the three coping variables in predicting the three outcome variables are presented below (see Figure 5).

Model 1: Loneliness, active and avoidant coping, and problem gambling symptoms

1a. Higher levels of loneliness will predict higher levels of problem gambling symptoms

1b. Higher levels of problem-focused coping (active coping) in response to loneliness will predict higher lower of problem gambling symptoms

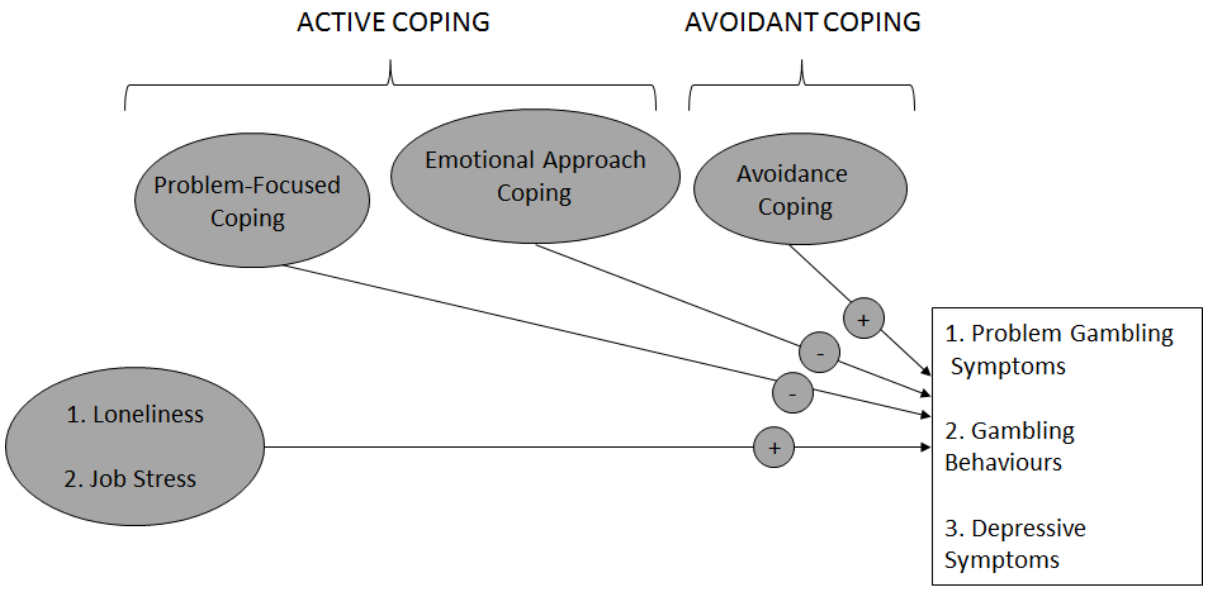

Figure 5. Hypothesized main effects of stressors and active and avoidant coping variables in predicting the outcome variables in the proposed stress-coping model.

1c. Higher levels of emotional approach coping (active coping) in response to loneliness will predict lower levels of problem gambling symptoms

1d. Higher levels of avoidance coping (avoidant coping) in response to loneliness will predict higher levels of problem gambling symptoms

Model 2: Job stress, active and avoidant coping, and problem gambling symptoms

2a. Higher levels of job stress will predict higher levels of problem gambling symptoms

2b. Higher levels of problem-focused coping (active coping) in response to job stress will predict lower levels of problem gambling symptoms

2c. Higher levels of emotional approach coping (active coping) in response to job stress will predict lower levels of problem gambling symptoms

2d. Higher levels of avoidance coping (avoidant coping) in response to job stress will predict higher levels of problem gambling symptoms

Model 3: Loneliness, active and avoidant coping, and gambling behaviour

3a. Higher levels of loneliness will predict higher levels of gambling behaviour

3b. Higher levels of problem-focused coping (active coping) in response to loneliness will predict higher lower of gambling behaviour

3c. Higher levels of emotional approach coping (active coping) in response to loneliness will predict lower levels of gambling behaviour

3d. Higher levels of avoidance coping (avoidant coping) in response to loneliness will predict higher levels of gambling behaviour

Model 4: Job stress, active and avoidant coping, and gambling behaviours

4a. Higher levels of job stress will predict higher levels of gambling behaviour

4b. Higher levels of problem-focused coping (active coping) in response to job stress will predict lower levels of gambling behaviour

4c. Higher levels of emotional approach coping (active coping) in response to job stress will predict lower levels of gambling behaviour

4d. Higher levels of avoidance coping (avoidant coping) in response to job stress will predict higher levels of gambling behaviour

Model 5: Loneliness, active and avoidant coping, and depressive symptoms

5a. Higher levels of loneliness will predict higher levels of depressive symptoms

5b. Higher levels of problem-focused coping (active coping) in response to loneliness will predict higher lower of depressive symptoms

5c. Higher levels of emotional approach coping (active coping) in response to loneliness will predict lower levels of depressive symptoms

5d. Higher levels of avoidance coping (avoidant coping) in response to loneliness will predict higher levels of depressive symptoms

Model 6: Job stress, active and avoidant coping, and depressive symptoms

6a. Higher levels of job stress will predict higher levels of depressive symptoms

6b. Higher levels of problem-focused coping (active coping) in response to job stress will predict lower levels of depressive symptoms

6c. Higher levels of emotional approach coping (active coping) in response to job stress will predict lower levels of depressive symptoms

6d. Higher levels of avoidance coping (avoidant coping) in response to job stress will predict higher levels of depressive symptoms

Interaction effects. The hypothesized interaction effects between the two stressor variables and the three coping variables in predicting the three outcome measures are presented below (see Figure 6). These interaction effects were hypothesized to be significant over and above the main effects of stress and coping.

Model 1: Loneliness, active and avoidant coping, and problem gambling symptoms

1e. Higher levels of problem-focused coping (active coping) in response to loneliness will attenuate the relationship between loneliness and problem gambling symptoms

1f. Higher levels of emotional approach coping (active coping) in response to loneliness will attenuate the relationship between loneliness and problem gambling symptoms

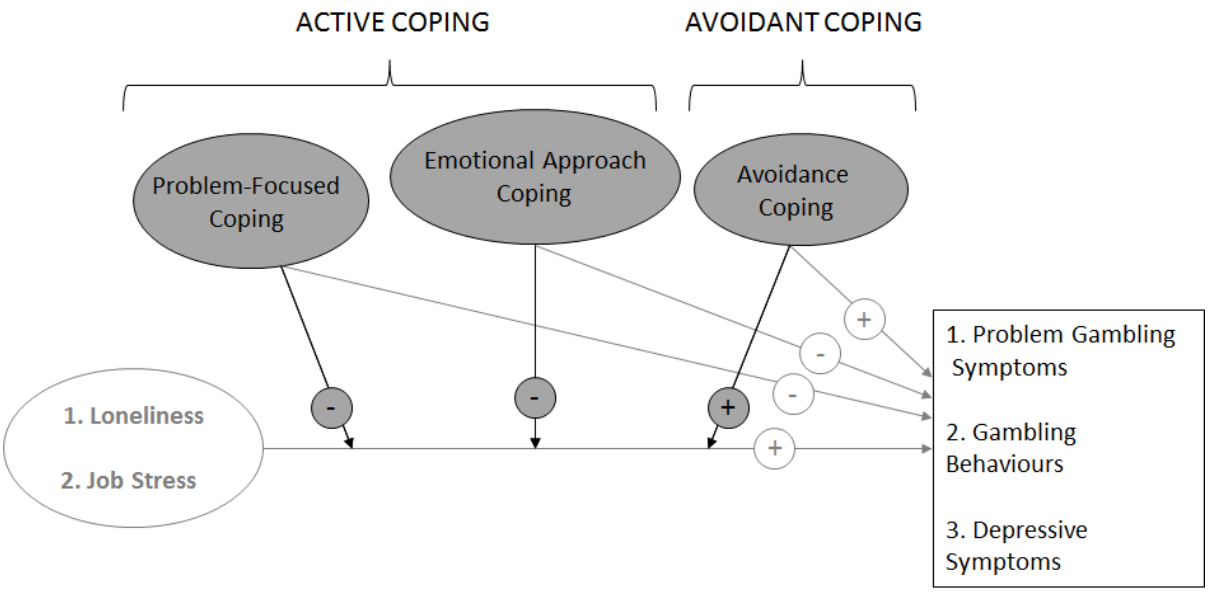

Figure 6. Hypothesized interaction effects of stressors and active and avoidant coping variables in predicting the outcome variables in the context of the proposed stress-coping model.

1g. Higher levels of avoidance coping (avoidant coping) in response to loneliness will strengthen the relationship between loneliness and problem gambling symptoms

Model 2: Job stress, active and avoidant coping, and problem gambling symptoms

2e. Higher levels of problem-focused coping (active coping) in response to job stress will attenuate the relationship between job stress and problem gambling symptoms

2f. Higher levels of emotional approach coping (active coping) in response to job stress will attenuate the relationship between job stress and problem gambling symptoms

2g. Higher levels of avoidance coping (avoidant coping) in response to job stress will strengthen the relationship between job stress and problem gambling symptoms

Model 3: Loneliness, active and avoidant coping, and gambling behaviours

3e. Higher levels of problem-focused coping (active coping) in response to loneliness will attenuate the relationship between loneliness and gambling behaviours

3f. Higher levels of emotional approach coping (active coping) in response to loneliness will attenuate the relationship between loneliness and gambling behaviours

3g. Higher levels of avoidance coping (avoidant coping) in response to loneliness will strengthen the relationship between loneliness and gambling behaviours

Model 4: Job stress, active and avoidant coping, and gambling behaviours

4e. Higher levels of problem-focused coping (active coping) in response to job stress will attenuate the relationship between job stress and gambling behaviours

4f. Higher levels of emotional approach coping (active coping) in response to job stress will attenuate the relationship between job stress and gambling behaviours

4g. Higher levels of avoidance coping (avoidant coping) in response to job stress will strengthen the relationship between job stress and gambling behaviours

Model 5: Loneliness, active and avoidant coping, and depressive symptoms

5e. Higher levels of problem-focused coping (active coping) in response to loneliness will attenuate the relationship between loneliness and depressive symptoms

5f. Higher levels of emotional approach coping (active coping) in response to loneliness will attenuate the relationship between loneliness and depressive symptoms

5g. Higher levels of avoidance coping (avoidant coping) in response to loneliness will strengthen the relationship between loneliness and depressive symptoms

Model 6: Job stress, active and avoidant coping, and depressive symptoms

6e. Higher levels of problem-focused coping (active coping) in response to job stress will attenuate the relationship between job stress and depressive symptoms

6f. Higher levels of emotional approach coping (active coping) in response to job stress will attenuate the relationship between job stress and depressive symptoms

6g. Higher levels of avoidance coping (avoidant coping) in response to job stress will attenuate the relationship between job stress and depressive symptoms

Exploratory hypotheses for religious coping variables. The effects of positive and negative religious coping were examined in the context of the stress-coping model. These variables were hypothesized to have main and interactive effects over and above the effects of the variables included in the stress-coping model.

Main effects. Figure 7 presents the hypothesized main effects of positive and negative religious coping on each of the three outcome variables. Main effects were hypothesized to be significant over and above the main effects of stress, active coping, and avoidant coping.

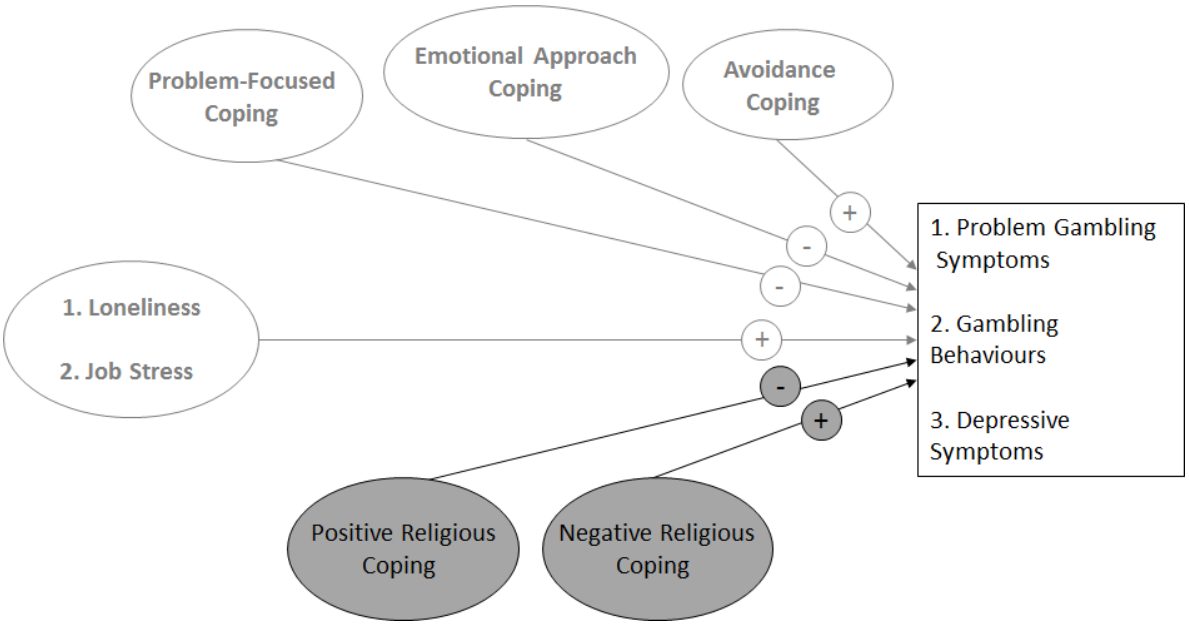

Figure 7. Hypothesized main effects of religious coping variables in predicting the outcome variables, assessed in the context of the proposed stress-coping model.

Model 1: Loneliness, active and avoidant coping, and problem gambling symptoms

7a. Higher levels of positive religious coping in response to loneliness will predict lower levels of problem gambling symptoms

7b. Higher levels of negative religious coping in response to loneliness will predict higher levels of problem gambling symptoms

Model 2: Job stress, active and avoidant coping, and problem gambling symptoms

8a. Higher levels of positive religious coping in response to job stress will predict lower levels of problem gambling symptoms

8b. Higher levels of negative religious coping in response to job stress will predict higher levels of problem gambling symptoms

Model 3: Loneliness, active and avoidant coping, and gambling behaviours

9a. Higher levels of positive religious coping in response to loneliness will predict lower levels of gambling behaviour

9b. Higher levels of negative religious coping in response to loneliness will predict higher levels of gambling behaviour

Model 4: Job stress, active and avoidant coping, and gambling behaviours

10a. Higher levels of positive religious coping in response to job stress will predict lower levels of gambling behaviours

10b. Higher levels of negative religious coping in response to job stress will predict higher levels of gambling behaviours

Model 5: Loneliness, active and avoidant coping, and depressive symptoms

11a. Higher levels of positive religious coping in response to loneliness will predict lower levels of depressive symptoms

11b. Higher levels of negative religious coping in response to loneliness will predict higher levels of depressive symptoms

Model 6: Job stress, active and avoidant coping, and depressive symptoms

12a. Higher levels of positive religious coping in response to job stress will predict lower levels of depressive symptoms

12b. Higher levels of negative religious coping in response to job stress will predict higher levels of depressive symptoms

Interaction effects. Figure 8 shows the hypothesized interaction effects between the two stressor variables and the two religious coping variables in predicting the three outcome measures. These interaction effects were hypothesized to be significant over and

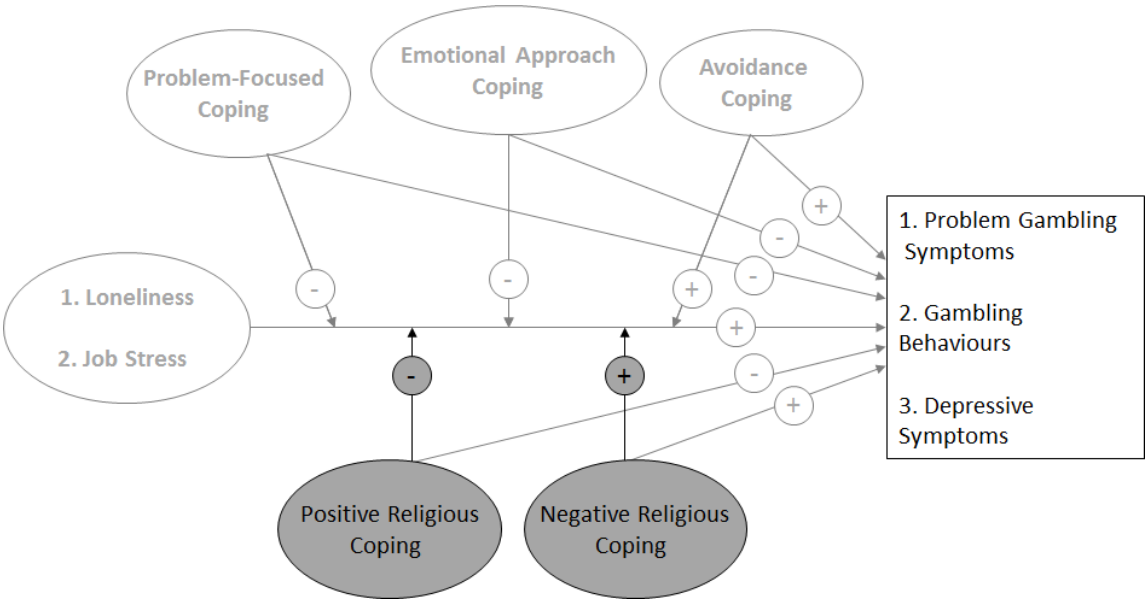

Figure 8. Hypothesized interaction effects of stressors and religious coping variables in predicting outcomes, assessed in the context of the proposed stress-coping model.

above (a) the main and interaction effects of stress, active coping, and avoidant coping; and (b) the main effects of religious coping.

Model 1: Loneliness, active and avoidant coping, and problem gambling symptoms

7c. Higher levels of positive religious coping with loneliness will attenuate the relationship between loneliness and problem gambling symptoms

7d. Higher levels of negative religious coping with loneliness will strengthen the relationship between loneliness and problem gambling symptoms

Model 2: Job stress, active and avoidant coping, and problem gambling symptoms

8c. Higher levels of positive religious coping with job stress will attenuate the relationship between job stress and problem gambling symptoms

8d. Higher levels of negative religious coping with job stress will strengthen the relationship between job stress and problem gambling symptoms

Model 3: Loneliness, active and avoidant coping, and gambling behaviours

9c. Higher levels of positive religious coping with loneliness will attenuate the relationship between loneliness and gambling behaviours

9d. Higher levels of negative religious coping with loneliness will strengthen the relationship between loneliness and gambling behaviours

Model 4: Job stress, active and avoidant coping, and gambling behaviours

10c. Higher levels of positive religious coping with job stress will attenuate the relationship between job stress and gambling behaviours

10d. Higher levels of negative religious coping with job stress will strengthen the relationship between job stress and gambling behaviours

Model 5: Loneliness, active and avoidant coping, and depressive symptoms

11c. Positive religious coping with loneliness will attenuate the relationship between loneliness and depressive symptoms

11d. Higher levels of negative religious coping with loneliness will strengthen the relationship between loneliness and depressive symptoms

Model 6: Job stress, active and avoidant coping, and depressive symptoms

12c. Positive religious coping with job stress will attenuate the relationship between job stress and depressive symptoms

12d. Higher levels of negative religious coping with job stress will strengthen the relationship between job stress and depressive symptoms

CHAPTER III

Methods

Recruitment and Administration Procedures

Participant recruitment and data collection were completed in two waves. During the first wave, participants were recruited by (a) posting advertisements online, and (b) contacting problem gambling treatment centres to request they post advertisements in their centres. Online advertisements were posted on search engines (Yahoo and Google) and on Facebook. Treatment centres in Canada and the United States were contacted via telephone to request that a paper advertisement be printed and posted in a prominent location at their centres (see Appendix A). Both online and paper advertisements included a URL for the study webpage, which contained a consent form (see Appendix B) and a brief multiple-choice questionnaire to screen participants for eligibility (see Appendix C). To pass the screening questionnaire, participants were required (a) to be 18 years of age or older, (b) to be residents of Canada or the United States, (c) to have gambled approximately once per month (on average), and (d) to have worked full-time (30 hours/week or more) over the last six months. Eligible participants were then asked to provide their first name, telephone number, and times when they could be reached; the principal investigator then called each participant to administer a telephone version of the G-TLFB (see Appendix D). At the end of the call, participants were given instructions for accessing the online component of the survey, which included all other study measures. Once they had completed the online survey, participants had the option to enter their email address to receive the $15 Amazon gift certificate. This initial round of data collection yielded four (2.8%) completed surveys over the course of several weeks. These

participants endorsed very high levels of problem gambling on the PGSI (M = 18.07, SD = 2.96). All of these participants were included in the final sample.

Due to the initial recruitment difficulties, the protocol was amended to minimize participation barriers. During the second wave of recruitment, the telephone interview was eliminated; advertisements sent participants directly to the online survey, which was altered to include an online version of the G-TLFB (see Appendix E). During this second phase, individuals were invited to participate (a) through online advertisements, and (b) through the Participant Pool at the University of Windsor.

The online advertisements were revised to reflect the compensation (a $15 Amazon gift certificate). These advertisements were posted (a) in the job section of online classifieds (Kjiji and Craigslist) for the area of Windsor, Ontario, Canada, and (b) on Facebook. The advertisements contained a link to a website with the revised consent form (Appendix F) and the revised screening questionnaire (Appendix G). To facilitate recruitment, the employment criterion in this screening questionnaire was relaxed: participants were now required to have worked either part-time or full-time throughout the last three months. This specific criterion was selected based on previous literature indicating that the Job Stress Survey showed good internal reliability among participants who met this particular criterion (Gellis, Kim, & Hwang, 2004).

Eligible individuals were then directed to the online survey (see Appendix H). All participants were allowed a two-week window during which they were permitted to save their responses and continue at a later time. Following completion of the survey, participants were given the opportunity to submit their email addresses to receive the $15 Amazon gift certificate. These online advertisements yielded the majority of responses in

the current study. In particular, twenty-eight (12.9%) participants were recruited through Kjiji and Craigslist, with PGSI scores reflective of high levels of problem gambling (M = 14.15, SD = 4.08). One-hundred and seventy (78.3%) participants were recruited through Facebook; these individuals endorsed comparatively low levels of problem gambling on the PGSI (M = 3.59, SD = 3.07).

In addition, 15 (6.9%) participants were recruited through the Psychology Participant Pool at the University of Windsor during the second phase of data collection. In the current sample, these individuals reported the lowest levels of problem gambling on the PGSI (M = 2.64, SD = 2.77). These students were enrolled in one or more undergraduate psychology courses and took part in the study to obtain course credit for a psychology course of their choice. Participant Pool participants viewed a consent form specific to this participant group (Appendix I), followed by the online survey (Appendix H). All study procedures were approved by the University of Windsor Research Ethics Board.

Sample characteristics. The final sample consisted of 92 females and 125 males who ranged in age from 18 to 62, with a mean age of 31 (see Table 1). The participants self-identified as Caucasian (72.8%), Black/African (11.1%), Hispanic (6.5%), East Asian (4.6%), or South Asian (2.8%). Participants' highest education level varied from elementary to post-graduate, with most having obtained a Bachelor's degree (67.3%).

Gambling characteristics of the sample are presented in Table 2. Reported gambling frequency ranged from once monthly to more than once daily, with most reporting weekly gambling (58.1%). The primary activities that participants reported having lost money at were internet gaming (35.5%), lottery tickets (31.8%), and slots

(18.0%). Participants' scores on the Problem Gambling Severity Index (PGSI; Wynne, 2003) indicated that most of the participants had some risk of gambling problems (87.6%), with many scoring in the problem gambling range (26.7%).

Employment characteristics are presented in Table 3. The majority of participants reported being employed full-time (87.1%), and a minority reported being employed at one or more part-time jobs (11.98%). A full range of income levels was represented.

Finally, the religious characteristics of the current sample are presented in Table 4. Most participants endorsed Christianity as their religious preference (73.3%), and the majority of participants indicated that their faith was either moderately strong or very strong (74.7%).

Measures

The measures used in the present study are described in detail below (see also Appendix H): (a) a background survey; (b) the University of California, Los Angeles Loneliness Scale (UCLA-LS, version 3; Russell, 1996); (c) the Job Stress Survey (Spielberger & Vagg, 1999); (d) the items from the Planning, Active Coping, Denial, and Mental Disengagement subscales of the Coping Orientations to Problems Experienced (COPE; Carver et al., 1989) in combination with the items from the Emotional Approach Coping Scale (EACS; Stanton et al., 2000); (e) the Brief RCOPE (Pargament et al., 1998);[3] (f) the Problem Gambling Severity Index (PGSI; Wynne, 2003); (g) a 30-day version of the Gambling Timeline Followback (G-TLFB; Sobell & Sobell, 1992; Weinstock et al., 2004), which was administered by telephone (Appendix D) and online

[3] The coping measure was administered twice, once in response to a recalled instance of loneliness and once in response to a recalled instance of job stress (see Coping Variables section, p. 95). Despite the similarity between scale names COPE and RCOPE, "RCOPE" is not identified as an acronym (see Pargament et al., 2000).

Table 1
Demographic Characteristics (N = 217)

	N	%
Age		
18 - 25	62	28.6
26 – 30	52	24.0
31 – 35	52	24.0
36 – 40	19	8.8
41 – 45	23	10.6
46+	9	4.2
Gender		
Male	125	57.6
Female	92	42.4
Residency		
Canadian	65	30.0
US	152	70.0
Highest Education		
Elementary	3	1.4
High school	34	15.7
College/vocational	14	6.5
Bachelor's	146	67.3
Post-graduate	20	9.2
Ethnicity		
Caucasian	158	72.8
East Asian	10	4.6
South Asian	6	2.8
Black/African	24	11.1
Hispanic	14	6.5
Other	4	1.9
History of Psychiatric Problems		
Yes	10	4.6
No	206	94.9
No response	1	0.5
Past Therapy/Counselling		
Yes	12	5.5
No	203	93.5
No response	2	0.9

Table 2
Gambling Characteristics (N = 217)

	N	%
Lifetime Participation		
Slots	100	46.1
Casino Tables	94	43.3
Internet Gaming	129	59.4
Lottery	173	79.7
Bingo	41	18.9
Horse Racing	37	17.1
Dog Racing	8	3.7
Sports Betting	74	34.1
Cards	43	19.8
Other Activities	2	0.9
Activity Lost Most $		
Slots	39	18.0
Casino Tables	13	6.0
Internet Gaming	77	35.5
Lottery	69	31.8
Bingo	5	2.3
Horse Racing	2	0.9
Sports Betting	4	1.8
Cards	6	2.8
Other Activities	1	0.5
Gambling Frequency		
Once monthly	39	18.0
Once weekly	126	58.1
Twice weekly	31	14.3
Once every two days	17	7.8
Once daily	3	1.4
More than once daily	1	0.5
Problem Gambling Severity Index (PGSI) Ranges		
Non-problem gambling	20	9.2
Low-risk gambling	54	24.9
Moderate-risk gambling	80	36.9
Problem gambling	56	25.8
No response	7	3.2

Table 3
Employment Characteristics (N = 217)

	N	%
Employment Status		
Full-time	189	87.1
Part-time, one job	13	6.0
Part-time, two or more jobs	13	6.0
Other	2	0.9
Employment Description		
Management, Business, and Financial	51	23.5
Computer, Engineering, and Science	25	11.5
Education, Legal, Community Service, Arts, and Media	27	12.4
Healthcare Practitioners and Technical	6	2.8
Service (e.g., healthcare support, protective service, food service, maintenance)	25	11.5
Sales and Related	27	12.4
Office and Administrative Support	32	14.7
Installation, Maintenance, and Repair	5	2.3
Production	3	1.4
Transportation and Material Moving	7	3.2
Other	5	2.3
Annual Income (Gross)		
0 - $20,000	12	5.5
$20,000 - $40,000	40	18.4
$40,000 - $60,000	53	24.4
$60,000 - $80,000	36	16.6
$80,000 – $100,000	36	16.6
$100,000 +	36	16.6
Prefer not to answer	3	1.4
No response	1	1.8
Length of Current Employment (Years)		
< 1	31	14.3
1-5	129	59.4
6-10	37	17.1
11-20	13	6.0
21+	2	0.9

No response	5	2.3
Hours Worked Per Week		
0-10	7	3.2
11-20	5	2.3
21-30	5	2.3
31-40	172	79.3
41-50	19	8.8
50+	4	1.8
No response	5	2.3
Student Status		
Non-student	169	77.9
Full-time student	32	14.7
Part-time student	12	5.5
No response	4	1.8

Table 4
Religious Characteristics (N = 217)

	N	%
Religious Preference		
Christianity	159	73.3
Nonreligious/Secular	8	3.7
Judaism	5	2.3
Islam	1	0.5
Buddhism	5	2.3
Agnostic	2	0.9
Atheist	7	3.2
Unitarian Universalist	1	0.5
Wiccan/Pagan/Druid	3	1.4
Spiritualist	3	1.4
No preference	15	6.9
Unsure	5	2.3
Prefer not to answer	2	0.9
Other	1	0.5
Strength of Faith		
Not very strong	17	7.8
A little strong	24	11.1
Moderately strong	85	39.2
Very strong	77	35.5
Not applicable	14	6.5

(Appendix E) during the two data collection phases, respectively; and (h) the Beck Depression Inventory (BDI-2; Beck et al., 1996). Aside from the telephone administration of the G-TLFB during the first phase of data collection, all measures were administered online.

Background questionnaire. A background questionnaire used in an earlier problem gambling study (Kuo, Frisch, Kramer, & Gillis, 2010) was adapted and included in the online survey. This questionnaire included items regarding age, gender,[5] education level, employment status, relationship status, ethnic/cultural background, place of birth, religious/spiritual preference, estimated monthly income, type and frequency of gambling activities, and past psychological treatment.

Stressor variables. To assess loneliness and job stress, the present study used the UCLA Loneliness Scale (UCLA-LS version 3; Russell, 1996) and the Job Stress Survey (JSS; Spielberger & Vagg, 1999).

UCLA Loneliness Scale (UCLA-LS version 3; Russell, 1996). The University of California Los Angeles Loneliness Scale (UCLA-LS) is a 20-item measure of self-reported dissatisfaction with one's interpersonal relationships and a general sense of alienation from others. Participants are asked to indicate how often they have various experiences (e.g., "How often do you feel that there is no one you can turn to?") on a four-point scale: 1 (*Never*), 2 (*Rarely*), 3 (*Sometimes*), and 4 (*Always*). Although some authors have proposed that the UCLA-LS scale measures more than one dimension of loneliness (e.g., McWhirter, 1990), most researchers have used the UCLA-LS scale to

[5] While the term *sex* is generally used to describe the physical characteristics of an individual, *gender* is more often considered to be a societal or cultural phenomenon (Diamond, 2002). The term *gender* was thus deemed to be more consistent with the other psychosocial constructs in the study.

measure a single factor. Three 20-item versions of the UCLA-LS have been developed (Russell, Peplau, & Cutrona, 1980; Russell, Peplau, & Ferguson, 1978; Russell, 1996). The later two versions reflect improvements to the previous versions. Nine items are reverse-keyed; response choices are summed across items to produce an overall score.

The most recent version of the UCLA-LS (version 3; Russell, 1996) demonstrated very good to excellent internal reliability, with alpha coefficients ranging from .89 to .94 among individuals in the general population (Russell, 1996). In addition, a recent study examining the psychometric properties of the latest version in a sample of opiate dependent individuals yielded internal reliability estimates between .79 and .90 across demographic groups, with an alpha coefficient of .87 for the total sample (Britton & Conner, 2007). These authors also reported a two-week test-retest reliability of .77 for the total sample. Convergent validity was indicated by a strong negative correlation between the UCLA-LS and scores on a measure of belongingness (r = -.67). In the present study, the internal consistency for this measure was .92.

Job Stress Survey (JSS; Spielberger & Vagg, 1991).[6] The JSS assesses 30 different sources of work stress over the last six months according to both severity and frequency of occurrence. For the severity ratings, respondents are asked to indicate the amount of stress that they associate with each stressor on a Likert-type scale, with response options anchored by 1 (*Low*), 5 (*Moderate*), and 9 (*High*). The first item, "Assignment of disagreeable duties," is given a rating of 5, and respondents are asked to compare each other stressor with this standard. For the frequency ratings, respondents are asked to indicate the "number of days on which the event occurred during the past 6 months," where the extreme ends of the scale are 0 and 9+ (i.e., nine or more days). An

[6] Permission was obtained to use this particular measure (see Appendix J)

index score for each stressor is calculated by multiplying the severity rating by the frequency rating for that item.

Responses on the JSS (Spielberger & Vagg, 1999) can be used to calculate indices for two 10-item subscales and one overall job stress index. The two subscales are Job Pressure (JP-X; e.g., "Assignment of new or unfamiliar duties") and Lack of Organizational Support (LS-X; e.g., "Lack of opportunity for advancement"). The general job stress index (JS-X) can be calculated by averaging across the 30 scale items (i.e., the 20 subscale items plus 10 items that do not pertain to either subscale). Because the current investigation is concerned with overall job stress levels, the general job stress index (JS-X) was used in the present analyses. In the scale development studies, the overall JS-X index demonstrated adequate to very good internal consistencies across managerial/professional, clerical/skilled maintenance, and senior military populations (α = .80, .85, and .75, respectively). The internal consistency estimate for the JS-X in the present study was .95.

Coping variables. The coping measures included in the present investigation were each administered twice, once in relation to a recalled experience of loneliness, and a second time in relation to an experience of job stress. Each coping measure was selected in part for its previous validation as an event-based coping measure (i.e., having the capacity to assess coping in response to a specific recalled event).

To assess coping in response to loneliness, participants were asked to recall a specific instance of loneliness and to respond to the coping measures in relation to this event. Following a procedure originally outlined by Folkman and Lazarus (1980), each

participant was asked to describe in writing (a) the recalled situation, and (b) how he or she felt emotionally at that time:

> *Everyone feels lonely sometimes. For this part of the survey, I would like you to take a few moments to remember a time when you felt that you lacked companionship, when you felt left out, or when you felt isolated from others. Try to recall what was happening and how you were feeling emotionally. Once this memory is clear in your mind, I would like you to briefly describe this situation in the space provided below. (A text box was provided for the participant's response.)*
>
> *In a few words, how did you feel emotionally in this situation? (A text box was provided for the participant's response.)*

The phrasing regarding the nature of the recalled instance of loneliness was based on the items from the Three-Item Loneliness Scale (Hughes, Waite, Hawkley, & Cacioppo, 2004), which is comprised of UCLA-LS items with particularly high factor loadings. This wording was thus chosen to maximize the relevance of the coping items to the stressor variable (in this case, the UCLA-LS). Meanwhile, the process of describing a specific instance is designed to activate the cognitive and emotional processes that were present during the event, thus enhancing participants' recollections of how they coped at that time (see Blaney, 1986, for a review). Indeed, previous research has found that an individual's previous coping responses to a particular stressor are more easily recalled when the representation of that stressor has been activated (Henderson, Orbell, & Hagger, 2009).

Finally, an additional open-ended question asked participants to indicate how they coped:

Briefly, what did you do in response to these feelings?

Participants' answers to these open-ended questions were not used in the analyses.

These open-ended questions were followed by a brief introduction to the coping items. Participants were asked to respond to the items from the coping scales according to how they coped with their recalled stressor (instructions are paraphrased from Carver et al., 1989):

> *I appreciate your effort in answering these questions. Now, I have some more specific questions about what you did in response to these feelings. Thinking back to the situation you just described, please indicate the extent to which you did what each following statement says.*[7]

Participants were then administered the items of the Coping Orientations to Problems Experienced (COPE; Carver et al., 1989; see below) and the Emotional Approach Coping Scale (EACS; Austenfeld & Stanton, 2004; see below), which were combined to form a single scale. Finally, the Brief RCOPE (Pargament et al., 1998) was administered, again in relation to the recalled instance of loneliness.

To assess coping in response to job stress, participants were asked to recall a specific instance in which they felt stress related to their jobs and to respond to the coping measures in relation to this event. The instructions were identical to the instructions for the loneliness scenario, except that it requested that participants recall a time in which "you felt stress in relation to your job." The coping items administered in the current

[7] Because coping was assessed in response to past stressors, all coping items were phrased in the past tense (as suggested by Carver et al., 1989).

study were taken from the Coping Orientations to Problems Experienced (COPE), the Emotional Approach Coping Scale (EACS), and the Brief RCOPE.

Coping Orientations to Problems Experienced (COPE; Carver et al., 1989). Participants' use of problem-focused and avoidance coping in response to recalled experiences of loneliness and job stress were measured using subscales selected from the situation-specific version of the COPE (Shepherd & Dickerson, 2001). The full COPE is comprised of 60 items designed to tap 13 different types of coping. Instructions for situation-specific version of the COPE ask participants to indicate how often they used certain coping strategies to deal with a specific stressor. The four response choices are 1 (*I didn't do this at all*), 2 (*I did this a little bit*), 3 (*I did this a medium amount*), and 4 (*I did this a lot).* Subscale scores are calculated by summing across applicable items.

Problem-focused coping. Following Shepherd and Dickerson's (2001) methodology, participants' use of problem-focused coping was assessed using an eight-item combination of the Planning and Active Coping subscales of the COPE (Carver et al., 1989). Items on the four-item Planning Coping subscale measure "coming up with action strategies, thinking about what steps to take and how best to handle the problem" (p. 268; e.g., "I took additional action to try to get rid of the problem"). Items on the four-item Active Coping subscale assess "initiating direct action, increasing one's efforts, and trying to execute a coping attempt in stepwise fashion" (p. 268; e.g., "I tried to come up with a strategy about what to do"). Shepherd and Dickerson (2001) reported that combining these two subscales to assess problem-focused coping yielded very good internal consistency ($\alpha = .86$) in their sample of electronic gaming machine players. In

the current study, the internal consistencies for the problem-focused coping measure were .92 and .90 when assessed in relation to loneliness and job stress, respectively.

Avoidance coping. To gauge participants' use of avoidance coping, the current study used Shepherd and Dickerson's (2001) eight-item amalgamation of the Denial and Mental Disengagement subscales of the COPE (Carver et al., 1989). Items on the four-item Denial subscale include behaviours that "serve to distract the person from thinking about the behavioural dimension or goal with which the stressor is interfering" (p. 269; e.g., "I refused to believe that it had happened"); items on the four-item Mental Disengagement subscale tap "refusal to believe that the stressor exists or of trying to act as though the stressor is not real" (p. 270; e.g., "I turned to work or other substitute activities to take my mind off things"). Shepherd and Dickerson's (2001) amalgam of these two subscales demonstrated adequate internal consistency in their sample of gamblers ($\alpha = .79$). In the current study, this variable is referred to as avoidance coping. The internal consistency estimates in the present study for this scale were .79 and .80 when assessed in relation to loneliness and job stress, respectively.

Emotional Approach Coping Scale (EACS; Stanton et al., 2000). The 16-item EACS assesses respondents' active use of their affective experiences to cope with stress. The measure is comprised of two eight-item subscales: Emotional Processing (EP) and Emotional Expression (EE). EP items tap "active attempts to acknowledge, explore meanings, and come to an understanding of one's emotions" (Austenfeld & Stanton, 2004, p. 1342; e.g., "I took the time to figure out what I was really feeling"); EE items measure "active verbal and/or nonverbal attempts to communicate or symbolize one's emotional experience" (e.g., "I allowed myself to express my emotions"). Four response

choices were used in the current study: 1 (*I didn't do this at all*), 2 (*I did this a little bit*), 3 (*I did this a medium amount*), and 4 (*I did this a lot*). Subscale scores were calculated by summing across applicable items.

The test development studies examined an eight-item version of the EACS (comprised of four EP items and four EE items) as well as the expanded, 16-item version described above (Stanton et al., 2000). The internal reliability estimates for the situation-specific version of the two eight-item subscales were excellent (α = .95-.97; A. Stanton, personal communication, July 22nd, 2010). The findings of the test development studies also offered empirical support for the convergent and discriminant validity of the two subscales (Stanton et al., 2000). Internal consistency estimates for the four-item EP and EE subscales have also been good among individuals reporting distressing traumatic or stressful experiences (α = .80 and .81, respectively; Cohen, Sander, Slavin, & Lumley, 2008). Further, the overall 8-item EACS demonstrated very good internal consistency among individuals reporting uncued panic attacks (α = .88; Tull et al., 2006). In the present study, the internal consistency coefficients for the 16-item EACS were both .93.

Brief RCOPE (Pargament et al., 1998). The Brief RCOPE is a 14-item scale that assesses the use of religion to cope with difficult life experiences. The Brief RCOPE, which is a shorter version of the longer 105-item RCOPE (Pargament et al., 2000), includes two seven-item subscales measuring what the test authors refer to as positive and negative forms of religious coping, respectively. As described earlier, the Positive Religious Coping subscale measures "an expression of a sense of spirituality, a secure relationship with God, a belief that there is meaning to be found in life, and a sense of spiritual connectedness with others" (Pargament et al., 1998, p. 712). Subscale items

include benevolent religious reappraisals (e.g., "Tried to see how God might be trying to strengthen me in this situation") and collaborative religious coping (e.g., "Tried to put my plans into action together with God"). Conversely, endorsement of items on the Negative Religious Coping subscale reflects "a less secure relationship with God, a tenuous and ominous view of the world, and a religious struggle in the search for significance" (p. 712). Example items from this subscale include punishing God reappraisals (e.g., "Felt punished by God for my lack of devotion") and spiritual discontent (e.g., "Wondered whether God had abandoned me"). Participants are asked to indicate the extent to which they used each coping method in response to a specific stressor. Response choices range from 1 (*not at all*) to 4 (*a great deal*). Subscale scores are calculated by summing across applicable items.

The psychometric properties of the 14-item Brief RCOPE were examined in two of the scale development studies (Pargament et al., 1998). In both studies, participants were asked to complete the scale items in response to a specific stressful experience. The first of these studies was conducted using college student participants (45% Catholic, 41% Protestant) who reported having experienced a significant negative event in the last three years. The authors reported very good internal consistency estimates for the Positive and Negative Religious Coping subscales (α = .90 and .81, respectively). The second scale development study surveyed hospitalized medical patients (religious denominations not reported); the authors reported similar psychometric results (α = .87 and .69, respectively). In addition, the results of confirmatory factor analyses indicated that the two-factor model fit the data well for both the college student sample and the hospital sample. Moreover, in the context of a recent treatment outcome study, the Brief

RCOPE was administered to outpatients with substance use disorders both before and after treatment (Robinson et al., 2007). Internal consistency coefficients for the Positive Religious Coping subscale were excellent (α = .93 and .94), and coefficients for the Negative Religious Coping subscale were very good (α = .83 for both administrations). In the present study, internal consistencies for the Positive Religious Coping subscale were .86 and .87 when measured in response to loneliness and job stress, respectively; for the Negative Religious Coping subscale, these estimates were .89 and .95.[8]

The instructions for the Brief RCOPE (Pargament et al., 1998) were presented twice, once in response to the recalled instance of loneliness, and a second time in response to the instance of job stress. Following Horstmann and Tonigan's (2000) methodology, the instructions preceding this measure were modified slightly to allow for diversity in participants' understanding of God. Thus, the instructions were presented as follows:

> *Again, thinking back to the situation you described above, please indicate the extent to which you did what each following statement says. In these statements, the word "God" is meant to reflect your own understanding of a Higher Power or God.*

This slight modification provided a more inclusive measure of religious coping, thus broadening the potential implications of the results.

Outcome variables. The three outcome variables posited in this study (i.e., problem gambling symptoms, gambling behaviours, and depressive symptoms) were assessed using three measures. Problem gambling symptoms were measured using the

[8] As discussed in the Results section, due to significant deviations from normality, two variables were created for each religious coping variable. The reliability estimates pertain to the continuous measures of religious coping (i.e., PRC-C and NRC-C).

PGSI (Wynne, 2003); gambling behaviours were assessed using telephone and online versions of the G-TLFB (Sobell & Sobell, 1992; Weinstock et al., 2004); and depressive symptoms were assessed using the BDI-II (Beck et al., 1996).

Problem Gambling Severity Index (PGSI; Wynne, 2003). The PGSI is a 9-item questionnaire that assesses participants' problem gambling symptoms. The instruction at the beginning of this measure reads, "Thinking about the past 12 months, how often…" followed by nine gambling-related problems (e.g., "have you bet more than you could really afford to lose?"). The four response choices are 0 (*never*), 1 (*sometimes*), 2 (*most of the time*), and 3 (*almost always*). Thus, higher scores indicate increased frequency of gambling-related problems. Reponses are summed to yield a summary score. The test author suggests using specific cut-off values to indicate different levels of gambling disorder (i.e., 0 represents "non-problem gambling", 1-2.5 represents "low-risk gambling", 3-7.5 represents "moderate-risk gambling", and 8-27 represents "problem gambling"). Wynne (2003) reports an internal consistency of .84 and a one-month test-retest reliability of .78. In the present study, the internal reliability estimate for this scale was .91.

Timeline Followback for Gambling (G-TLFB; Sobell & Sobell, 1992; Weinstock et al., 2004). The G-TLFB was developed based on the Timeline Followback, which is a self-report measure originally developed to assess alcohol problems using calendar prompts (Sobell & Sobell, 1992) and was more recently adapted for gambling behaviours (Hodgins & Makarchuk, 2003; Weinstock et al., 2004). Participants are asked to look at a calendar and are asked to estimate on what days they gambled, and how much time and money they spent on gambling on those days. For each of these three indices,

researchers have suggested optimal behavioural cut-off points to distinguish problem from recreational gamblers, and these criteria have demonstrated high levels of sensitivity and specificity (above .80; Weinstock, Ledgerwood, & Petry, 2007).

In the present study, the G-TLFB was initially administered over the telephone in an adaptation of a procedure originally used by Sobell and colleagues (Sobell, Brown, & Sobell, 1996; see Appendix D). Due to the initial low response rate, an online version of this measure was administered during the second wave of data collection (see Appendix E). For the online administration, participants were presented with a calendar of the last 30 days and were asked to enter time and dollars spent gambling on each of those days. Additional instructions and a sample calendar were available to clarify the instructions.

The G-TLFB can be used to assess gambling within varying time periods (e.g., 30 days, 6 months, 12 months). To reduce participant fatigue and attrition, the present study assessed gambling behaviours occurring during the 30 days preceding the test administration date. A within-subjects comparison of 30-day and 90-day versions of the TLFB for alcohol use showed high correlations between these two measures, supporting the validity of the shorter 30-day measure (Pederson & LaBrie, 2005). Moreover, limiting the time period for the TLFB has been shown to increase the validity of responses (Vinson, Reidinger, & Wilcosky, 2003).

The G-TLFB has demonstrated adequate two-week test-retest reliabilities for frequency of gambling (r = .75), duration of gambling (r = .79) and dollars spent on gambling (r = .89; Weinstock et al., 2004). Concordance between responses on a daily gambling self-monitoring instrument and responses on the G-TLFB for gambling also provided evidence of criterion validity. Hodgins and Makarchuk (2003) found strong

associations between participant and collateral reports on the G-TLFB for days gambled (r = .66-.67) and dollars spent (r = .61).[9]

As of yet, no published research reports include telephone-administered or online versions of the G-TLFB. However, a telephone version of the original TLFB has been validated for the measurement of alcohol use. Sobell and colleagues (1996) reported that the TLFB for alcohol use administered via telephone was highly correlated with the paper-and-pencil version of this measure (r = .77-.90 across alcohol use metrics). Meanwhile, computerized versions of the TLFB for alcohol use have been validated (e.g., Roy et al., 2008).

To obtain a composite measure of gambling behaviour intensity, a principal components analysis was conducted to extract a single factor based on the three gambling variables assessed by the G-TLFB (frequency, duration, and dollars spent). The resulting factor score for each participant was then used as an index of excessive gambling (see Schumacker & Lomax, 1996).

Beck Depression Inventory-II (BDI-II; Beck et al., 1996). The BDI-II was administered as part of the online survey in order to gauge participants' depressive symptoms. This 21-item self-report instrument measures respondents' symptoms of clinical depression in the last two weeks. Each scale item represents a depressive symptom; for each scale item, respondents are asked to choose one of four statements (scored 0-3) reflecting a range of clinical severity for that particular symptom (e.g., for feelings of failure, response choices range from 0 [*I do not feel like a failure*] to 3 [*I feel I am a total failure as a person*]). Items are summed to produce a summed depression score, with higher scores indicating more severe symptoms.

[9] Duration of gambling episodes was not measured in this study.

The BDI-II has demonstrated good convergent validity (Osman et al., 1997) and test-retest reliability (Sprinkle et al., 2002); internal consistency estimates reported in previous studies have been excellent (e.g., .90-.91; Osman et al., 1997). In the present study, the internal reliability coefficient for this measure was .94.

CHAPTER IV

Results

SPSS v. 19 and Stata v. 11 were used to test the study hypotheses using bootstrap multiple regression analyses. Six multiple regression analyses were conducted to test the proposed stress-coping model, one for each stressor variable in relation to each of the three outcome variables. Exploratory analyses were also conducted to test the contributions of positive and negative religious coping in the context of each of the six permutations of the proposed model.

Data Screening and Preparation

All data were initially screened for missing data and entry errors. Twenty-seven participants were dropped from the study because they did not provide sufficient data to be included in any of the analyses. Participants who did not complete one or more scales in the dataset were removed from the analyses pertaining to the missing variable. However, these participants were retained for all other analyses. Because there were only a few missing values, mean item replacement was deemed sufficient to address missing data (Field, 2009). However, for the Job Stress Survey (Spielberger & Vagg, 1999), missing values were replaced by a given participant's average item score (as recommended in the test manual).

The statistical assumptions of multiple regression analyses were then tested using procedures outlined by Field (2009). Histograms of the predictor and outcome variables revealed some deviations from normality. To address these issues, logarithmic transformations were performed on the following variables: loneliness, job stress, problem-focused coping with job stress, problem gambling symptoms, gambling

behaviours, and depressive symptoms. Avoidance coping with loneliness was transformed using a reflected inverse function. In addition, because the partial regression plots revealed heteroskedasticity and non-linearity, a bootstrap multiple regression analysis with 5,000 repetitions was conducted using Stata. In essence, a bootstrap analysis creates a number of subsamples drawn from the entire study sample. It then calculates statistics for each of these subsamples, and it uses the distributions of these statistics to calculate confidence intervals, which are robust to the presence of non-normality and heteroskedasticity. Beta coefficients can be interpreted as statistically significant if their confidence intervals do not encompass a point estimate of zero (i.e., the upper and lower parameter values of the interval are either both positive or both negative). Ninety-five percent confidence intervals were calculated for all regression coefficients, reflecting an alpha level of .05. This alpha level was deemed appropriate for the purpose of this investigation, which was to explore a range of stress-coping processes as predictors of outcomes. The current design thus accepted the possibility of family-wise error (i.e., false positives) in the interest of identifying potentially promising variables for future investigation. Nevertheless, as a precaution against over-interpretation of significant findings that may have been due to family wise error, the effect sizes of statistically significant beta coefficients, as determined by Cohen's (1992) guidelines, are also reported to aid the interpretation of the study's results.

In addition to the aforementioned issues, histograms for the four religious coping variables revealed considerable deviations from normality, as a large fraction of respondents endorsed no religious coping (indicated by the fact that they had achieved the minimum score). In other words, the histograms for these variables revealed a large

number of cases on the left side of the distributions, reflecting the subsample of participants who scored the minimum on these measures. Two potential solutions to this problem were considered. The first possibility was to exclude non-endorsers from the relevant analyses, the rationale being that the analysis in question would be irrelevant for participants who did not endorse that form of religious coping. However, a drawback of this first possibility was that it would restrict sample size, thus reducing statistical power. In addition, by excluding non-endorsers, information regarding the differences between endorsers and non-endorsers would be lost.

An alternative solution, which was ultimately deemed preferable, was to create two variables for each religious coping variable: a dichotomous variable to differentiate endorsers from non-endorsers, and a continuous variable calculated only for individuals who scored above the minimum on that religious coping variable.[10] One benefit of this solution was that all participants would be included in the analyses. In addition, this approach allowed for the possibility that the difference between low endorsers and high endorsers was distinct from the difference between non-endorsers and endorsers. Thus, by creating two variables for each form of religious coping, more information could be derived from each religious coping variable, increasing overall predictive power. Two variables were thus constructed for each religious coping variable: (a) a continuous variable, referred to in the current section as either *positive religious coping, continuous (PRC-C)* or *negative religious coping, continuous (NRC-C)*; and (b) a dummy variable, referred to as either *positive religious coping, dichotomous (PRC-D)* or *negative religious*

[10] Non-endorsers were assigned a score of zero on the continuous measure in order to retain these cases in the analyses. Thus, the dichotomous variables (i.e., PRC-D and NRC-D) capture the difference in predicted outcomes between (a) non-endorsement of a given form of religious coping, and (b) mean score among endorsers of that same form of religious coping (i.e., mean scores on PRC-C and NRC-C).

coping, dichotomous (NRC-D). Thus, a total of four religious coping variables were included in each of the six MRAs pertaining to religious coping (see Table 5 for a list of study variables). This strategy of creating two variables from each religious coping subscale was used to maximize the amount of information that could be derived from these subscales while minimizing deviations from normality. Indeed, this procedure normalized the distributions for most of the continuous religious coping variables; however, NRC-C with Loneliness still showed a bimodal distribution that could not be resolved using conventional data transformations. As normality is less of a concern among predictor variables (Tabachnik & Fidell, 2001), this variable was nevertheless retained in the study.

Following transformations, Cook's Distance values for the continuous variables were all within an acceptable range, reflecting an absence of problematic multivariate outliers. Although a few univariate outliers were discovered, they were within the acceptable range and number for the present large sample (i.e., less than 5% of z-scores > ±3.29). One instance of potentially problematic multicolinearity was detected between avoidance coping with job stress and NRC-C with job stress ($r = .92$, $p < .001$); this issue was considered in the interpretations of the results. The continuous predictor and outcome variables were converted to z-scores in order to centre them. Similarly, the dichotomous religious coping variables (PRC-D and NRC-D) were centred by subtracting the variable mean from participant's scores. Interaction terms were calculated based on the centred variables, as recommended in the literature on interaction analyses (Frazier, Tix, & Barron, 2004).

Descriptives

The means and standard deviations of the study variables for the final sample are presented in Table 5. Tables 6 and 7 present the bivariate correlations between predictor variables and the three outcome variables, as well as the reliability coefficients for the relevant measures.

Hypothesis Testing for the Stress-Coping Model

Hypotheses of the stress-coping model were tested using SPSS v. 19 and Stata v. 11. All confidence intervals reported in the current section were calculated using bootstrap samples with 5,000 replications.[11] For each step of the regression models, variables were entered hierarchically and changes in R^2 were assessed at each step using chi-squared tests for joint significance. Demographic control variables were entered at the first step of each MRA. These variables were included to minimize spurious findings due to the simultaneous effects of third variables on predictors and outcome variables. Specific control variables were selected for inclusion based on two criteria: (a) each significantly affected the regression coefficients for the model variables in one or more MRAs when included as a predictor; and (b) each was deemed to be theoretically unlikely to mediate a causal relationship between the model variables and the outcomes. The final list of demographic control variables included eight variables: age, gender, length of employment, hours worked per week, annual income, residency (Canada or US), religion (Judeo-Christian or not Judeo-Christian), and strength of faith. Each MRA included the same control variables to facilitate comparison across the analyses. To interpret the significant interaction terms, simple slope analyses were conducted (Frazier et al., 2004; see Figures 9-11).

[11] To identify significant beta coefficients at the $p < .01$ level, 20,000 replications were used.

Table 5
Descriptive Statistics for Study Variables

	n	Scale Range	Mean	*SD*
Loneliness	214	20.00 – 80.00	36.56	9.41
Job Stress	217	0 – 79.80	15.29	12.06
Problem-Focused Coping				
Loneliness	209	8.00 – 32.00	23.99	6.07
Job Stress	209	8.00 – 32.00	25.49	5.32
Avoidance Coping				
Loneliness	209	8.00 – 32.00	14.84	4.66
Job Stress	209	8.00 – 32.00	13.59	4.38
Emotional Approach Coping				
Loneliness	209	16.00 – 64.00	41.26	9.80
Job Stress	209	16.00 – 64.00	40.80	9.84
Positive Religious Coping, Continuous				
Loneliness	191	7.00 – 28.00	16.88	3.97
Job Stress	170	7.00 – 28.00	17.76	3.69
Positive Religious Coping, Dichotomous				
Loneliness	214 (191, 23)[a]	0.00 – 1.00	.89	.31
Job Stress	209 (170, 39)[a]	0.00 – 1.00	.81	.39
Negative Religious Coping, Continuous				
Loneliness	74	7.00 – 28.00	14.37	4.40
Job Stress	63	7.00 – 28.00	16.05	5.49
Negative Religious Coping, Dichotomous				
Loneliness	214 (74, 140)[a]	0.00 – 1.00	.35	.48
Job Stress	209 (63, 146)[a]	0.00 – 1.00	.30	.46
Problem Gambling Symptoms	210	0.00 – 27.00	5.16	5.10
Gambling Behaviours[b]	205		0.00	1.00
Depressive Symptoms	216	0.00 – 63.00	7.93	9.02

[a] Parentheses indicate *n* for endorsers and non-endorsers, respectively. [b] Gambling behaviours were measured based on the last 30 days, and reflect a linear combination of gambling frequency, session duration, and dollars spent (see Methods section, p. 84); thus, the range of possible scores could not be computed.

Table 6
Pearson Correlations for Analyses Pertaining to Loneliness

	LS	PFC	AC	EAC	PRC-C	PRC-D	NRC-C	NRC-D	PGS	GB	DS
Loneliness (LS)	--										
Problem-Focused Coping (PFC)	-.53**	--									
Avoidance Coping (AC)	.44**	-30**	--								
Emotional Approach Coping (EAC)	-.53**	.74**	-.19**	--							
Positive Religious Coping (PRC-C)	.00	.29**	.09	.25**	--						
Positive Religious Coping (PRC-D)	.00	.23**	.05	.19**	--[a]	--					
Negative Religious Coping (NRC-C)	.04	.26*	.60**	.39**	.54**	.21	--				
Negative Religious Coping (NRC-D)	.46**	-26**	.60**	-.18**	.33**	.19**	--[a]	--			
Problem Gambling Symptoms (PGS)	.44**	.02	.46**	-.05	.49**	.28**	.69**	.55**	--		
Gambling Behaviours (GB)	.58**	-.16*	.42**	-.16*	.33**	.02	.50**	.41**	.62**	--	
Depressive Symptoms (DS)	.72**	-47**	.60**	-.42**	.14	-.04	.67**	.55**	.51**	.55**	

Reliabilities (α)	.92	.92	.79	.93	.86	-- [b]	.89	-- [b]	.91	-- [c]	.94

Note. *$p < .05$, **$p < .01$. Coping variables measured in response to a recalled experience of loneliness. *PRC-C* = Positive Religious Coping – Continuous, *PRC-D* = Positive Religious Coping – Dichotomous, *NRC-C* = Negative Religious Coping – Continuous, *NRC-D* = Negative Religious Coping – Dichotomous.

[a] Correlation could not be calculated due to lack of variance in the dichotomous variable across values of the continuous variable. [b] Reliability coefficients could not be determined for PRC-D or NRC-D because they are dichotomous variables. [c] Reliability coefficient could not be determined for gambling behaviours due to the nature of the measure used to assess this variable (see Methods section, p. 84).

Table 7
Pearson Correlations for Analyses Pertaining to Job Stress

	JS	PFC	AC	EAC	PRC-C	PRC-D	NRC-C	NRC-D	PGS	GB	DS
Job Stress (JS)	--										
Problem-Focused Coping (PFC)	-.32**	--									
Avoidance Coping (AC)	.43**	-.41**	--								
Emotional Approach Coping (EAC)	-26**	.46**	-.04	--							
Positive Religious Coping (PRC-C)	.16*	-.13	.53**	.19*	--						
Positive Religious Coping (PRC-D)	-29**	.01	.17*	.39**	--[a]	--					
Negative Religious Coping (NRC-C)	.79**	-.44**	.92**	.25*	.73**	.14	--				
Negative Religious Coping (NRC-D)	.34**	-44**	.61**	-.05	.52**	.29**	--[a]	--			
Problem Gambling Symptoms (PGS)	.26**	-38**	.66**	-.08	.53**	.38**	.82**	.67**	--		
Gambling Behaviours (GB)	.36**	-31**	.48**	-.26**	.36**	.06	.48**	.44**	.62**	--	
Depressive Symptoms (DS)	.60**	-49**	.53**	-.43**	.35**	-.19*	.77**	.50**	.51**	.55**	.--
Reliabilities (α)	.95	.90	.80	.93	.87	--[b]	.95	--[b]	.91	--[c]	.94

Note. *$p < .05$, **$p < .01$. Coping variables measured in response to a recalled instance of job stress. *PRC-C* = Positive Religious Coping – Continuous, *PRC-D* = Positive Religious Coping – Dichotomous, *NRC-C* = Negative Religious Coping – Continuous, *NRC-D* = Negative Religious Coping – Dichotomous.
[a] Correlation could not be calculated due to lack of variance in the dichotomous variable across values of the continuous variable. [b] Reliability coefficients could not be determined for PRC-D or NRC-D because they are dichotomous variables. [c] Reliability coefficient could not be determined for gambling behaviours due to the nature of the measure used to assess this variable (see Methods section, p. 84).

Open-ended questions. As indicated earlier, as part of the introduction to each set of coping items, participants were asked to write about the recalled stressor relevant to that set of coping items (i.e., loneliness or job stress, respectively; see Methods section, p. 84). They were also asked to provide a brief written account of their emotional reactions and coping responses used in that scenario. The purpose of including these questions was to activate the cognitive and emotional processes associated with the recalled experience. The results of these open-ended questions are presented in the current section to provide the context for the reported coping responses.

Sixty-two (28.6%) of participants provided responses to these questions; the response rate was much higher among participant pool participants (92.9%) than it was in the general population sample (24.1%). An informal examination of the content of participants' responses pertaining to the loneliness scenario revealed that the most consistent theme was exclusion from of a group of peers, followed by social isolation. The primary emotional response was sadness, although shame and anger were frequently reported as well. Three types of coping responses were reported in equal proportion: (a) avoidance or distraction, (b) seeking social support, and (c) not coping with the stressor. In response to the job stress scenario, the most frequently reported situation referred to the expectations of management exceeding the individual's available resources. The primary emotional responses were anger and, to a lesser extent, anxiety. Finally, participants reported a number of different coping responses to their recalled job stress scenarios: (a) avoiding the situation or the associated emotions, (b) calming oneself in the moment, (c) devising a strategy for how to proceed, (d) seeking assistance from management, (e) seeking social support, and (f) working harder.

Models predicting problem gambling symptoms. Two hierarchical multiple regression analyses were conducted to examine predictors of problem gambling symptoms.

Loneliness and coping with loneliness as predictors of problem gambling symptoms. A hierarchical regression analysis was conducted to assess the main and interactive effects of loneliness and coping with loneliness on problem gambling symptoms (see Table 8)

R^2values. In Block 1, problem gambling symptoms were regressed on demographic control variables. In Block 2, the main effects of loneliness and the three coping variables were added. Together these accounted for significant additional variance in problem gambling symptoms, $\Delta R^2 = .31$, $\chi^2(4, n = 200) = 84.02$, $p < .001$. In Block 3, the three interaction terms were added. These three interaction terms also accounted for significant additional variance in problem gambling symptoms, $\Delta R^2 = .00$, $\chi^2(3, n = 200) = 8.22$, $p < .05$.

Main effects. Hypothesis 1a stated that higher levels of loneliness would predict higher levels of problem gambling symptoms. This hypothesis was supported ($B = .33$, 95% CI [.15 – .49]), and the beta coefficient indicated a medium effect size (Cohen, 1992). However, neither problem-focused coping with loneliness ($B = .02$, 95% CI [-.30 - .28]) nor emotional approach coping with loneliness ($B = -.08$, 95% CI [-.30 - .16]) predicted fewer problem gambling symptoms, thus failing to support Hypotheses 1b and 1c, respectively. Nevertheless, higher levels of avoidance coping with loneliness

Table 8
Loneliness and Coping with Loneliness as Predictors of Problem Gambling Symptoms (n = 210)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.24**		
Control Variables			
Block 2	.55**		
Control Variables			
Loneliness		0.33**	.15 - .49
Problem-Focused Coping		0.02	-.30 - .28
Avoidance Coping		0.38**	.23 - .54
Emotional Approach Coping		-0.08	-.30 - .16
Block 3	.58*		
Control Variables			
Loneliness		0.32**	.16 - .49
Problem-Focused Coping		-0.02	-.28 - .24
Avoidance Coping		0.36**	.22 - .52
Emotional Approach Coping		-0.07	-.27 - .16
Loneliness X Problem-Focused Coping		0.22	-.02 - .36
Loneliness X Avoidance Coping		-0.04	-.20 - .08
Loneliness X Emotional Approach Coping		-0.21*	-.36 - -.03

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step.
* $p < .05$.
** $p < .01$

predicted higher levels of problem gambling symptoms, thus supporting Hypothesis 1d (*B* = .38, 95% CI [.23 - .54]). The beta weight reflected a medium effect size. Thus, in the context of the conceptual model, higher levels of loneliness and avoidant coping predicted higher levels of problem gambling symptoms, whereas active coping did not predict problem gambling symptoms.

Interaction effects. Hypothesis 1e specified that higher levels of problem-focused coping with loneliness would attenuate the relationship between loneliness and problem

gambling symptoms. This hypothesis was not supported (B = .22, 95% CI [-.02 - .36]). Meanwhile, Hypothesis 1f, which specified that higher levels of emotional approach coping with loneliness would attenuate the relationship between loneliness and problem gambling symptoms, was supported (B = -.21, 95% CI [-.36 - -.03]; see Figure 9). The beta coefficient indicated a small effect size (Cohen, 1992). Finally, higher levels of avoidance coping with loneliness did not strengthen the relationship between loneliness and problem gambling symptoms, thus failing to support Hypothesis 1g (B = -.04, 95% CI [-.20 - .08]). Thus, in the context of the conceptual model, higher levels of active coping in the form of emotional approach coping (but not problem-focused coping) attenuated the relationship between loneliness and problem gambling symptoms. Meanwhile, avoidant coping did not affect this link.

Job stress and coping with job stress as predictors of problem gambling symptoms. A hierarchical regression analysis was conducted to assess the main and interactive effects of job stress and coping with job stress on problem gambling symptoms (see Table 9).

R^2values. Problem gambling symptoms were again regressed on demographic controls in Block 1. In Block 2, the main effects of job stress and the three coping variables were added. Together these accounted for significant additional variance in problem gambling symptoms, ΔR^2 =.37, $\chi^2(4, n = 208) = 182.98$, $p < .001$. In Block 3, the three interaction terms were added; the contribution of these variables to the variance in problem gambling symptoms was not significant, ΔR^2 =.01, $\chi^2(3, n = 208) = 1.78$, p = .62.

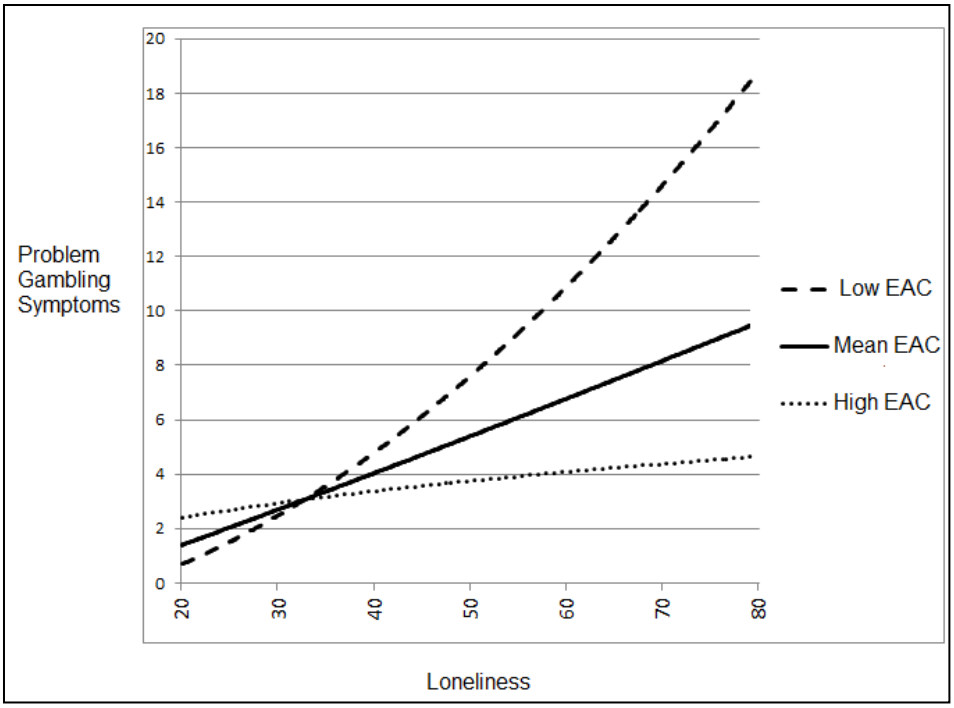

Figure 9. The interaction between loneliness and emotional approach coping (EAC) in predicting problem gambling symptoms. The relationship between loneliness and problem gambling symptoms is plotted at low (-1 SD), mean, and high (+1 SD) levels of EAC.

Main effects. Hypothesis 2a stated that higher levels of job stress would predict higher levels of problem gambling symptoms. This hypothesis was supported (B = .25, 95% CI [.10 – .41]). The beta coefficient indicated a small effect size (Cohen, 1992) Meanwhile, Hypothesis 2b indicated that higher levels of problem-focused coping with job stress would significantly predict fewer problem gambling symptoms; this hypothesis was not supported (B = -.16, 95% CI [-.30 - .01]). Meanwhile, higher levels of emotional approach coping with job stress significantly predicted lower levels of problem gambling symptoms (B = -.17, 95% CI [-.35 - -.02]), supporting Hypothesis 2c. The beta

Table 9
Job Stress and Coping with Job Stress as Predictors of Problem Gambling Symptoms (n = 210)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.24**		
Control Variables			
Block 2	.61**		
Control Variables			
Job Stress		0.25**	.10 - .41
Problem-Focused Coping		-0.16*	-.30 - - .01
Avoidance Coping		0.40**	.23 - .57
Emotional Approach Coping		-0.17*	-.35 - - .02
Block 3	.62		
Control Variables			
Job Stress		0.26**	.08 - .42
Problem-Focused Coping		-0.15	-.30 - -.01
Avoidance Coping		0.39**	.23 - .59
Emotional Approach Coping		-0.22	-.40 - -.05
Job Stress X Problem-Focused Coping		-0.01	-.19 - .15
Job Stress X Avoidance Coping		-0.01	-.21 - .16
Job Stress X Emotional Approach Coping		0.11	-.07 - .27

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step.
* $p < .05$.
** $p < .01$

weight indicated a small effect size. Hypothesis 2d was supported as well, as higher levels of avoidance coping with job stress significantly predicted higher levels of problem gambling symptoms (*B* = .40, 95% CI [.23 - .57]); the beta coefficient reflected a medium effect size. Thus, in the context of the predicted model, higher levels of job stress predicted more problem gambling symptoms. Higher levels of active coping predicted less problem gambling symptoms (although problem-focused coping did not reach

significance), while higher levels of avoidant coping predicted more problem gambling symptoms.

To further examine the relationship between emotional approach coping with job stress and problem gambling symptoms, additional analyses were conducted to assess the relative contributions of emotional processing (EP) and emotional expression (EE). Because previous researchers have reported that findings for EP and EE differed based on gender (e.g., Austenfeld & Stanton, 2004; Baker & Berenbaum, 2007; Stanton et al., 1994), these analyses were conducted separately for men and women. The results indicated that the significant relationship between emotional approach coping and problem gambling symptoms was primarily due to the contribution of EE among male participants (*B* = -.18, 95% CI [-.31 - -.05]).

Interaction effects. The current analysis revealed no significant interaction effects. Hypothesis 2e indicated that problem-focused coping in response to job stress would attenuate the relationship between job stress and problem gambling symptoms. This hypothesis was not supported (*B* = -.01, 95% CI [-.19 - .15]). Similarly, Hypothesis 2f, which specified that higher levels of emotional approach coping with job stress would attenuate the relationship between job stress and problem gambling symptoms, was not supported either (*B* = .11, 95% CI [-.07 - .27]). Finally, Hypothesis 2g indicated that higher levels of avoidance coping with job stress would strengthen the link between job stress and problem gambling symptoms; this hypothesis was not supported either (*B* = -.01, 95% CI [-.21 - .16].). Thus, in the context of the conceptual model, neither active coping nor avoidant coping impacted on the relationship between job stress and problem gambling symptoms.

Models predicting gambling behaviours. Two hierarchical multiple regression analyses were conducted to examine predictors of gambling behaviours.

Loneliness and coping with loneliness as predictors of gambling behaviours. A hierarchical regression analysis was conducted to assess the main and interactive effects of loneliness and coping with loneliness on gambling behaviours (see Table 10).

R^2values. Gambling behaviours were regressed on demographic controls in Block 1. In Block 2, the main effects of loneliness and the three coping variables were added. These variables together accounted for significant additional variance in gambling behaviours, $\Delta R^2 = .33$, $\chi^2 (4, n = 195) = 59.09$, $p < .001$. In Block 3, the three interaction terms were added; these three interaction terms did not account for additional model variance, $\Delta R^2 = .01$, $\chi^2 (3, n = 195) = 1.81$, $p = .61$.

Main effects. Hypothesis 3a stated that higher levels of loneliness would predict higher levels of gambling behaviours. This hypothesis was supported ($B = .59$, 95% CI [.40 – .80]), and the effect size indicated by the beta coefficient was large (Cohen, 1992) However, neither higher levels of problem-focused coping with loneliness ($B = .15$, 95% CI [-.18 - .38]) nor emotional approach coping with loneliness ($B = -.04$, 95% CI [-.22 – .18]) predicted lower levels of gambling behaviours, thus failing to support Hypotheses 3b and 3c, respectively. Meanwhile, Hypothesis 3d specified that higher levels of avoidance coping with loneliness would predict higher levels of gambling behaviours, which was indeed the case ($B = .17$, 95% CI [.04 - .29]). The beta weight indicated a small effect size. Thus, in the context of the predicted model, higher levels of loneliness predicted more gambling behaviours. Active coping did not predict gambling behaviours, whereas higher levels of avoidant coping predicted more gambling behaviours.

Table 10
Loneliness and Coping with Loneliness as Predictors of Gambling Behaviours (n = 205)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.11**		
Control Variables			
Block 2	.44**		
Control Variables			
Loneliness		0.59**	.40 - .80
Problem-Focused Coping		0.15	-.18 - .38
Avoidance Coping		0.17*	.04 - .29
Emotional Approach Coping		-0.04	-.22 - .18
Block 3	.45		
Control Variables			
Loneliness		0.54**	.35 - .75
Problem-Focused Coping		0.08	-.27 - .34
Avoidance Coping		0.15*	.02 - .29
Emotional Approach Coping		-0.02	-.22 - .24
Loneliness X Problem-Focused Coping		0.06	-.16 - .47
Loneliness X Avoidance Coping		0.09	-.11 - .29
Loneliness X Emotional Approach Coping		-0.09	-.42 - .07

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step.
* $p < .05$.
** $p < .01$

Interaction effects. The current analysis revealed no significant interaction effects. Hypothesis 3e, which indicated that higher levels of problem-focused coping with loneliness would attenuate the relationship between loneliness and gambling behaviours, was not supported (*B* = .06, 95% CI [-.16 - .47]). Similarly, Hypothesis 3f specified that higher levels of emotional approach coping with loneliness would attenuate the relationship between loneliness and gambling behaviours; this hypothesis was not supported either (*B* = .-.09, 95% CI [-.42 - .07]). Finally, Hypothesis 3g indicated that

higher levels of avoidance coping with loneliness would strengthen the link between loneliness and gambling behaviours; this hypothesis was not supported either (B = .09, 95% CI = -.11 - .29]). Thus, in the context of the conceptual model, neither active coping nor avoidant coping impacted on the relationship between loneliness and gambling behaviours.

Job stress and coping with job stress as predictors of gambling behaviours. A hierarchical regression analysis was conducted to assess the main and interactive effects of job stress and coping with job stress on gambling behaviours (see Table 11).

R^2values. Gambling behaviours were again regressed on demographic controls in Block 1. In Block 2, the main effects of job stress, problem-focused, avoidance, and emotional approach coping were added, and accounted for significant additional variance in outcome, ΔR^2 =.26, $\chi^2(4, n = 203) = 61.29$, $p < .001$. The three interaction terms were added in Block 3; these variables together did not account for significant additional variance in the predicted model, ΔR^2 =.03, $\chi^2(3, n = 203) = 4.69$, $p = .20$.

Main effects. Hypothesis 4a specified that higher levels of job stress would predict higher levels of gambling behaviours. This hypothesis was supported (B = .26, 95% CI [.05 – .52]), and the effect size indicated by the beta weight was small (Cohen, 1992). Hypothesis 4b, which stated that higher levels of problem-focused coping with job stress would predict lower levels of gambling behaviours, was not supported (B = -.03, 95% CI [-.22 – .17]). Meanwhile, consistent with Hypothesis 4c, higher levels of emotional approach coping with job stress predicted lower levels of gambling behaviours (B = -.29, 95% CI [-.55 - -.06]); the effect size reflected by the beta weight was small. As was the case in the model predicting problem gambling symptoms, additional analyses

Table 11
Job Stress and Coping with Job Stress as Predictors of Gambling Behaviours (n = 205)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.11**		
Control Variables			
Block 2	.37**		
Control Variables			
Job Stress		0.26*	.05 - .52
Problem-Focused Coping		-0.03	-.22 - .17
Avoidance Coping		0.28**	.07 - .48
Emotional Approach Coping		-0.29*	-.55 - -.06
Block 3	.40		
Control Variables			
Job Stress		0.31*	.07 - .57
Problem-Focused Coping		-0.01	-.21 - .18
Avoidance Coping		0.08	-.16 - .38
Emotional Approach Coping		-0.41**	-.69 - -.13
Job Stress X Problem-Focused Coping		0.05	-.13 - .27
Job Stress X Avoidance Coping		0.22	-.05 - .44
Job Stress X Emotional Approach Coping		0.18	-.10 - .42

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step.
* $p < .05$.
** $p < .01$

highlighted emotional expression among the male participants as the primary reason for this significant finding (*B* = -.27, 95% CI [-.48 – (-).00]). In addition, as specified by Hypothesis 4d, higher levels of avoidance coping with job stress were predictive of higher levels of gambling behaviours (*B* = .28, 95% CI [.07 – .48]); again the beta weight indicated a small effect size. Thus, in the context of the conceptual model, higher levels of job stress predicted more gambling behaviours. In addition, higher levels of active

coping in the form of emotional approach coping (but not problem-focused coping) predicted less gambling behaviours, whereas higher levels of avoidant coping predicted more gambling behaviours.

Interaction effects. No significant interaction effects were found in the current analysis. Hypothesis 4e indicated that higher levels of problem-focused coping with job stress would attenuate the relationship between job stress and gambling behaviours; this hypothesis was not supported (B = .05, 95% CI [-.13 - .27]). Hypothesis 4f specified that higher levels of emotional approach coping with job stress would attenuate the relationship between job stress and gambling behaviours, and this hypothesis was not supported either (B = .18, 95% CI [-.10 - .42]). Finally, Hypothesis 4g indicated that higher levels of avoidance coping would strengthen the link between job stress and gambling behaviours; this hypothesis was not supported (B = .22, 95% CI [-.05 - .44]). Thus, in the context of the conceptual model, active coping did not affect the relationship between job stress and gambling behaviours.

Models predicting depressive symptoms. Two hierarchical multiple regression analyses were conducted to examine predictors of depressive symptoms.

Loneliness and coping with loneliness as predictors of depressive symptoms. A hierarchical regression analysis was conducted to assess the main and interactive effects of loneliness and coping with loneliness on depressive symptoms (see Table 12).

R^2values. In Block 1, depressive symptoms were regressed on demographic controls. In Block 2, the main effects of loneliness, problem-focused, emotional approach, and avoidance coping were added, and accounted for significant additional variance in outcome, ΔR^2 =.44, $\chi^2(4, n = 206) = 292.13$, $p < .001$. The three interaction

Table 12
Loneliness and Coping with Loneliness as Predictors of Depressive Symptoms (n = 216)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.25**		
Control Variables			
Block 2	.69**		
Control Variables			
Loneliness		0.49**	.37 - .60
Problem-Focused Coping		-0.05	-.22 - .09
Avoidance Coping		0.35**	.24 - .46
Emotional Approach Coping		0.01	-.15 - .16
Block 3	.71*		
Control Variables			
Loneliness		0.53**	.4 - .64
Problem-Focused Coping		-0.02	-.22 - .12
Avoidance Coping		0.37**	.25 - .48
Emotional Approach Coping		-0.01	-.18 - .17
Loneliness X Problem-Focused Coping		0.01	-.10 - .17
Loneliness X Avoidance Coping		-0.11*	-.22 - (-).00
Loneliness X Emotional Approach Coping		0.07	-.06 - .17

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step.
* $p < .05$.
** $p < .01$

terms were added in Block 3, and together these accounted for significant additional model variance, $\Delta R^2 = .02$, $\chi^2(3, n = 206) = 10.68$, $p < .05$.

Main effects. Hypothesis 5a specified that higher levels of loneliness would predict higher levels of depressive symptoms. This hypothesis was supported ($B = .49$, 95% CI [.37 - .60]), and the beta coefficient indicated a medium effect size (Cohen, 1992). Meanwhile, neither higher levels of problem-focused coping with loneliness (B = -

.05, 95% CI [-.22 – .09]) nor emotional approach coping with loneliness (*B* = .01, 95% CI [-.15 – .16]) predicted lower levels of depressive symptoms, thus failing to support Hypotheses 5b and 5c, respectively. However, Hypothesis 5d, which specified that higher levels of avoidance coping with loneliness would predict higher levels of depressive symptoms, was supported (*B* = .35, 95% CI [.24 – .46]); the effect size reflected by the beta coefficient was medium. Thus, in the context of the predicted model, higher levels of loneliness predicted more depressive symptoms. Higher levels of active coping did not predict depressive symptoms, while higher levels of avoidant coping predicted more depressive symptoms.

Interaction effects. Hypothesis 5e indicated that higher levels of problem-focused coping with loneliness would attenuate the relationship between loneliness and depressive symptoms; this hypothesis was not supported (*B* = .01, 95% CI [-.10 - .17]). Hypothesis 5f specified that higher levels of emotional approach coping with loneliness would attenuate the relationship between loneliness and depressive symptoms. This hypothesis was not supported either (*B* = .07, 95% CI [-.06 - .17]). Finally, Hypothesis 5g indicated that higher levels of avoidance coping with loneliness would strengthen the link between loneliness and depressive symptoms; this hypothesis was not supported either. In fact, this interaction term was significant in the direction opposite to the hypothesis (*B* = -.11, 95% CI = -.22 – (-).00]), and the effect size indicated by the beta weight was small (Cohen, 1992). In sum, in the context of the conceptual model, active coping did not significantly impact on the relationship between loneliness and depressive symptoms; meanwhile, avoidant coping attenuated this relationship.

Job stress and coping with job stress as predictors of depressive symptoms. A hierarchical regression analysis was conducted to assess the main and interactive effects

Table 13
Job Stress and Coping with Job Stress as Predictors of Depressive Symptoms (n = 216)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.25**		
Control Variables			
Block 2	.67**		
Control Variables			
Job Stress		0.42**	.29 - .56
Problem-Focused Coping		-0.16**	-.28 - -.04
Avoidance Coping		0.25**	.11 - .41
Emotional Approach Coping		-0.20**	-.37 - -.06
Block 3	.68		
Control Variables			
Job Stress		0.46**	.31 - .63
Problem-Focused Coping		-0.16**	-.28 - -.04
Avoidance Coping		0.15	-.01 - .34
Emotional Approach Coping		-0.26**	-.42 - -.11
Job Stress X Problem-Focused Coping		0.04	-.10 - .17
Job Stress X Avoidance Coping		0.11	-.08 - .27
Job Stress X Emotional Approach Coping		0.09	-.06 - .25

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step.
* $p < .05$.
** $p < .01$

of job stress and coping with job stress on depressive symptoms (see Table 13).

R^2values. Depressive symptoms were again regressed on demographic variables in Block 1. In Block 2, the main effects of job stress, problem-focused, avoidance, and emotional approach coping were added, and accounted for significant additional outcome

variance, $\Delta R^2 = .42$, $\chi^2(4, n = 208) = 208.32$, $p < .001$. The three interaction terms together did not account for additional variance when added in Block 3, $\Delta R^2 = .01$, $\chi^2(3, n = 208) = 5.03$, $p = .17$.

Main effects. All main effects hypothesized for the current regression analysis were supported. First, Hypothesis 6a, which specified that higher levels of job stress would predict higher levels of depressive symptoms, was supported (*B* = .42, 95% CI [.29 – .56]). The beta coefficient showed a medium effect size (Cohen, 1992). In addition, consistent with Hypothesis 6b, higher levels of problem-focused coping with job stress predicted lower levels of depressive symptoms (*B* = -.16, 95% CI [-.28 - -.04]); the effect size reflected by the beta weight was small. Similarly, higher levels of emotional approach coping with job stress also predicted lower levels of depressive symptoms (*B* = -.20, 95% CI [-.37 - -.06]), thus supporting Hypothesis 6c; the effect size indicated by the beta coefficient was small. As in the other two models pertaining to job stress, further analyses suggested that this result was primarily due to the effectiveness of emotional expression among the male participants (*B* = -.19, 95% CI [-.35 - -.08]). Hypothesis 6d was also supported, as higher levels of avoidance coping with job stress predicted higher levels of depressive symptoms (*B* = .25, 95% CI [.11 – .41]). The effect size reflected by the beta weight was small. Thus, in the context of the conceptual model, job stress predicted more depressive symptoms. Higher levels of active coping predicted lower levels of depressive symptoms, while higher levels of avoidant coping predicted more depressive symptoms.

Interaction effects. Results of the present analysis did not reveal any significant interaction effects. Hypothesis 6e indicated that higher levels of problem-focused coping

with job stress would attenuate the relationship between job stress and depressive symptoms; this hypothesis was not supported (*B* = .04, 95% CI [-.10 - .17]). Hypothesis 6f, which specified that higher levels of emotional approach coping with job stress would attenuate the relationship between job stress and depressive symptoms, was not supported either (*B* = .09, 95% CI [-.06 - .25]). Finally, Hypothesis 6g indicated that higher levels of avoidance coping with job stress would strengthen the link between job stress and depressive symptoms; this hypothesis was not supported either (*B* = .11, 95% CI [-.08 - .27]). Thus, in the context of the conceptual model, neither active coping nor avoidant coping impacted on the relationship between job stress and depressive symptoms.

Hypothesis Testing for Religious Coping in the Context of the Stress-Coping Model

Exploratory analyses were conducted to assess the effects of positive and negative religious coping in the context of the six multiple regression analyses discussed above. Bivariate correlations between these two religious coping variables and other model variables are included in Tables 6 and 7. As discussed earlier (see Data Screening and Preparation, p. 106), due to violations of normality resulting from the large number of participants who did not endorse any religious coping, two variables were created from each religious coping variable. Two variables were created to assess positive religious coping: (a) Positive Religious Coping – Continuous (PRC-C), which is a continuous religious coping variable that was only calculated for participants who scored above the minimum on that variable; and (b) Positive Religious Coping – Dichotomous (PRC-D), which is a dummy variable to differentiate individuals who did and did not endorse any items on that particular scale. The corresponding variables were created for negative

religious coping (i.e., NRC-C and NRC-D). Thus, a total of four religious coping variables were included in each of the six MRAs pertaining to religious coping.

The demographic and religious characteristics of the participants who did and did not endorse religious coping are presented in Tables 14 and 15. The statistics for Pearson correlations between religious coping and demographic and religious characteristics are presented in Table 16. Overall, endorsement of religious coping tended to be significantly associated with male gender, US residency, and higher income. There were also some differences across PRC and NRC. For instance, endorsement of PRC was associated with Judeo-Christian religious preference, more education, and greater strength of faith. Meanwhile, endorsement of NRC was associated with non-Judeo-Christian religious preference and less education. It should be noted that all of the demographic and religious variables included in Tables 14 and 15, with the exception of education level, were controlled in the present analyses.

As in the analyses for the stress-coping model, bootstrap samples were used to calculate confidence intervals. Variables were again entered hierarchically, and changes in R^2 estimates were assessed at each step. In Block 1 of each of the six MRAs, the demographic controls from the stress-coping model analyses were entered along with the main effects of the relevant stressor variable and three non-religious coping variables. In Block 2, the main effects of positive and negative religious coping were added to test the hypotheses for the main effects of religious coping. In Block 3, the three interaction terms for non-religious coping were added, again to control for the effects of these interaction terms when examining the interactions between stressors and religious coping variables. Finally, in Block 4, the terms for the interactions between the relevant stressor and the

religious coping variables were added to test the hypotheses for the interaction effects of religious coping.

Religious coping in the context of models predicting problem gambling symptoms. Two hierarchical regression analyses were conducted to assess the main and

Table 14.
Demographic Characteristics of Endorsers and Non-Endorsers of Religious Coping (n = 194)

	PRC and NRC (*n* = 67)		PRC Only [a] (*n* = 108)		Neither PRC nor NRC (*n* = 19)	
	n	%	*n*	%	*n*	%
Age						
18 - 25	19	28.4	31	28.7	5	26.3
26 – 30	16	23.8	24	22.2	5	26.3
31 – 35	16	23.8	25	23.1	5	26.3
36 – 40	4	6.0	12	11.1	1	5.3
41 – 45	8	11.9	12	11.1	1	5.3
46+	2	3.0	4	3.7	2	10.5
Gender						
Male	44	65.7	67	62.0	6	31.6
Female	23	34.3	41	38.0	13	68.4
Residency						
Canadian	10	14.9	16	14.8	18	94.7
US	57	85.1	92	85.2	1	5.3
Highest Education						
Elementary	3	4.5	0	0.0	0	0.0
High school	18	26.9	2	1.9	7	36.8
College/vocational	1	1.5	5	4.6	5	26.3
Bachelor's	43	64.2	85	78.7	6	31.6
Post-graduate	2	3.0	16	14.8	1	5.3
Ethnicity						
Caucasian	31	53.7	91	84.3	17	89.5
East Asian	3	4.5	5	4.6	1	5.3
South Asian	4	6.0	2	1.9	0	0.0

Black/African	18	26.9	5	4.6	0	0.0
Hispanic	10	14.9	4	3.7	0	0.0
Other	1	1.5	1	0.9	1	5.3
Annual Income (Gross)						
0 - $20,000	2	3.0	3	2.8	5	26.3
$20,000 - $40,000	16	23.9	12	11.1	3	15.8
$40,000 - $60,000	14	20.9	27	25.0	6	31.6
$60,000 - $80,000	8	11.9	22	20.4	2	10.5
$80,000 – $100,000	18	26.9	18	26.9	0	0.0
$100,000 +	8	11.9	26	24.1	1	5.3
Prefer not to answer	1	1.5	0	0.0	1	5.3
No response	0	0.0	0	0.0	1	5.3

Note. *PRC* = Positive Religious Coping. *NRC* = Negative Religious Coping.
[a] No participants endorsed NRC without endorsing PRC.

Table 15.
Religious Characteristics of Endorsers and Non-Endorsers of Religious Coping (n = 194)

	PRC and NRC (*n* = 67)		PRC Only [a] (*n* = 108)		Neither PRC nor NRC (*n* = 19)	
	n	%	*n*	%	*n*	%
Religious Preference						
Christianity	45	67.2	99	91.7	3	15.8
Nonreligious/ Secular	1	1.5	1	0.9	3	15.8
Judaism	4	6.0	1	0.9	0	0.0
Islam	1	1.5	0	0.0	0	0.0
Buddhism	3	4.5	0	0.0	1	5.3
Agnostic	1	1.5	0	0.0	1	5.3
Atheist	0	0.0	1	0.9	3	15.8
Unitarian Universalist	1	1.5	0	0.0	0	0.0
Wiccan/Pagan/ Druid	0	0.0	2	1.9	1	5.3
Spiritualist	1	1.5	0	0.0	0	0.0
No preference	8	11.9	2	1.9	4	21.1
Unsure	2	3.0	0	0.0	2	10.5
Prefer not to answer	0	0.0	1	0.9	1	5.3
Other	0	0.0	1	0.9	0	0.0
Strength of Faith						
Not very strong	2	3.0	2	1.9	6	31.6
A little strong	7	10.4	5	4.6	5	26.3
Moderately strong	35	52.2	44	40.7	0	0.0
Very strong	23	34.3	54	50.0	0	0.0
Not applicable	0	0.0	3	2.8	8	42.1

Note. *PRC* = Positive Religious Coping. *NRC* = Negative Religious Coping.
[a] No participants endorsed NRC without endorsing PRC.

Table 16
Pearson Correlations between Demographic and Religious Characteristics and Religious Coping Variables

	PRC-C (LS)	PRC-D (LS)	NRC-C (LS)	NRC-D (LS)	PRC-C (JS)	PRC-D (JS)	NRC-C (JS)	NRC-D (JS)
Age	-.02	.10	.03	-.05	.04	.10	.07	-.07
Gender[a]	-.25**	-.14*	-.17*	-.04	-.26**	-.25**	-.12	-.15*
Residency (CAN/US)[b]	.50**	.50**	.22**	.06	.37**	.72**	.07	.24**
Post-secondary[c]	-.08	.20**	.04	-.24**	-.13	.19**	.02	-.25**
Annual Income	.22**	.25**	.24**	-.09	.19**	.37**	.19**	.02
Judeo-Christian	.08	.51**	-.17*	-.12	-.07	.53**	-.26**	-.04
Strength of Faith	.40**	.58**	.11	.02	.18**	.70**	.09	.10

Note. Coping variables measured in response to a recalled experience of loneliness (*LS*) or job stress (*JS*). *PRC-C* = Positive Religious Coping – Continuous, *PRC-D* = Positive Religious Coping – Dichotomous, *NRC-C* = Negative Religious Coping – Continuous, *NRC-D* = Negative Religious Coping – Dichotomous.
[a] Higher values indicate female gender.
[b] Higher values indicate US residency.
[c] Indicates one degree/diploma beyond high school
*$p < .05$
**$p < .01$.

interactive effects of religious coping with loneliness and with job stress on problem gambling symptoms.

Religious coping with loneliness in predicting problem gambling symptoms. A hierarchical regression analysis was conducted to explore the main and interactive effects of loneliness and religious coping on problem gambling symptoms (see Table 17).

R^2values. In Block 1, problem gambling symptoms were regressed on demographic control variables, loneliness, and the non-religious coping variables. In

Table 17
Loneliness and Religious Coping as Predictors of Problem Gambling Symptoms (n = 210)

Variable	R^2	*B*	95% CI
Block 1	.55**		
Control Variables			
Loneliness		0.33**	.15 - .49
Problem-Focused Coping		0.02	-.30 - .28
Avoidance Coping		0.38**	.23 - .54
Emotional Approach Coping		-0.08	-.30 - .16
Block 2	.65**		
Control Variables			
Loneliness		0.28**	.11 - .44
Problem-Focused Coping		0.15	-.16 - .39
Avoidance Coping		0.09	-.10 - .31
Emotional Approach Coping		-0.16	-.37 - .09
Positive Religious Coping (PRC-C)		0.11	-.05 - .24
Positive Religious Coping (PRC-D)		0.03	-.63 - .70
Negative Religious Coping (NRC-C)		0.49**	.27 - .72
Negative Religious Coping (NRC-D)		0.69**	.32 – 1.12
Block 3	.68*		
Control Variables			
Loneliness		0.25**	.09 - .42
Problem-Focused Coping		0.12	-.14 - .35
Avoidance Coping		0.07	-.11 - .29
Emotional Approach Coping		-0.15	-.33 - .08
Positive Religious Coping (PRC-C)		0.12	-.04 - .26
Positive Religious Coping (PRC-D)		0.01	-.61 - .66
Negative Religious Coping (NRC-C)		0.49**	.27 - .71
Negative Religious Coping (NRC-D)		0.72**	.31 – 1.15
Loneliness X Problem-Focused Coping		0.14	-.12 - .28
Loneliness X Avoidance Coping		-0.02	-.16 - .09
Loneliness X Emotional Approach Coping		-0.22*	-.36 - -.03
Block 4	.70		
Control Variables			
Loneliness		0.33**	.12 - .52
Problem-Focused Coping		0.14	-.11 - .35
Avoidance Coping		0.05	-.13 - .26
Emotional Approach Coping		-0.12	-.32 - .12
Positive Religious Coping (PRC-C)		0.15	-.02 - .28

Positive Religious Coping (PRC-D)	0.07	-.64 - .69
Negative Religious Coping (NRC-C)	0.51**	.30 - .74
Negative Religious Coping (NRC-D)	0.74**	.35 – 1.18
Loneliness X Problem-Focused Coping	0.12	-.18 - .27
Loneliness X Avoidance Coping	0.06	-.13 - .24
Loneliness X Emotional Approach Coping	-0.25*	-.41 - -.01
Loneliness X PRC-C	0.02	-.13 - .17
Loneliness X PRC-D	0.39	-.08 – 1.07
Loneliness X NRC-C	-0.12	-.33 - .10
Loneliness X NRC-D	-0.41	-.85 - .09

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step. *PRC-C* = Positive Religious Coping, Continuous, *PRC-D* = Positive Religious Coping, Dichotomous, *NRC-C* = Negative Religious Coping, Continuous, *NRC-D* = Negative Religious Coping, Dichotomous
* $p < .05$.
** $p < .01$

Block 2, the main effects for the religious coping variables were added; these accounted for significant additional variance in outcome, $\Delta R^2 = .10$, $\chi^2(4, n = 198) = 31.92$, $p < .001$. The three interaction terms for basic coping were entered in Block 3 as controls. Finally, in Block 4, the interactions between loneliness and religious coping were added. These interaction terms did not account for significant additional outcome variance, $\Delta R^2 = .02$, $\chi^2(4, n = 198) = 3.48$, $p = .48$.

Main effects. Hypothesis 7a indicated that higher levels of positive religious coping in response to loneliness would predict lower levels of problem gambling symptoms. This hypothesis was not supported for PRC-C (*B* = .11, 95% CI [-.05 - .24]) or for PRC-D was not significant (*B* = .03, 95% CI [-.63 - .70]). Meanwhile, Hypothesis 7b, which specified that higher levels of negative religious coping in response to loneliness would predict higher levels of problem gambling symptoms, was supported for both NRC-C (*B* = .49, 95% CI [.27 - .72]) and NRC-D (*B* = .69, 95% CI [.32 - 1.12]).

The effect sizes of the latter two beta coefficients indicated medium and large effect sizes, respectively (Cohen, 1992).

Interaction effects. The results of the current MRA revealed no significant interaction effects for religious coping. Hypothesis 7c indicated that higher levels of positive religious coping in response to loneliness would attenuate the relationship between loneliness and problem gambling symptoms. This hypothesis was not supported for either PRC-C (B = .02, 95% CI [-.13 - .17]) or for PRC-D (B = .39, 95% CI [-.08 - 1.07]). Hypothesis 7d stated that higher levels of negative religious coping in response to loneliness would strengthen the relationship between loneliness and problem gambling symptoms. This hypothesis was not supported for either NRC-C (B = -.12, 95% CI [-.33 - .10]) or for NRC-D (B = -.41, 95% CI [-.85 - .09]).

Religious coping with job stress in predicting problem gambling symptoms. A hierarchical regression analysis was conducted to explore the main and interactive effects of job stress and religious coping on problem gambling symptoms (see Table 18).

R^2values. In Block 1, problem gambling symptoms were regressed on demographic control variables, loneliness, and the three non-religious coping variables. In Block 2, the main effects for the religious coping variables were added; these did not account for significant additional variance in outcome, ΔR^2 =.05, $\chi^2(4, n = 206) = 17.60$, $p < .01$. The three interaction terms for basic coping were entered in Block 3 as controls. Finally, in Block 4, the interactions between job stress and religious coping were added. These interaction terms did not account for significant additional outcome variance, ΔR^2 =.01, $\chi^2(4, n = 206) = 7.13$, $p = .13$.

Table 18
Job Stress and Religious Coping as Predictors of Problem Gambling Symptoms (n = 210)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.61**		
Control Variables			
Job Stress		0.25**	.10 - .41
Problem-Focused Coping		-0.16*	-.30 - -.01
Avoidance Coping		0.40**	.23 - .57
Emotional Approach Coping		-0.17*	-.35 - - .02
Block 2	.66**		
Control Variables			
Job Stress		0.09	-.09 - .29
Problem-Focused Coping		-0.02	-.17 - .13
Avoidance Coping		0.22	-.07 - .45
Emotional Approach Coping		-0.22**	-.39 - -.06
Positive Religious Coping (PRC-C)		-0.01	-.21 - .18
Positive Religious Coping (PRC-D)		0.34	-.39 – 1.13
Negative Religious Coping (NRC-C)		0.30	-.04 - .68
Negative Religious Coping (NRC-D)		0.82**	.32 – 1.40
Block 3	.67		
Control Variables			
Job Stress		0.10	-.12 - .31
Problem-Focused Coping		-0.02	-.17 - .13
Avoidance Coping		0.25*	.01 - .46
Emotional Approach Coping		-0.23*	-.39 - -.05
Positive Religious Coping (PRC-C)		-0.01	-.20 - .18
Positive Religious Coping (PRC-D)		0.35	-.37 – 1.21
Negative Religious Coping (NRC-C)		0.30	-.06 - .73
Negative Religious Coping (NRC-D)		0.80**	.26 – 1.41
Job Stress X Problem-Focused Coping		0.00	-.17 - .18
Job Stress X Avoidance Coping		-0.03	-.26 - .17
Job Stress X Emotional Approach Coping		0.02	-.17 - .20
Block 4	.68		
Control Variables			
Job Stress		0.19	-.04 - .38
Problem-Focused Coping		-0.02	-.16 - .14
Avoidance Coping		0.28*	.05 - .52
Emotional Approach Coping		-0.24**	-.42 - -.06
Positive Religious Coping (PRC-C)		0.00	-.21 - .19
Positive Religious Coping (PRC-D)		0.38	-.36 – 1.24

Negative Religious Coping (NRC-C)	0.01	-.34 - .40
Negative Religious Coping (NRC-D)	0..60*	.10 - 1.14
Job Stress X Problem-Focused Coping	0.00	-.18 - .18
Job Stress X Avoidance Coping	-0.05	-.39 - .17
Job Stress X Emotional Approach Coping	0.01	-.20 - .21
Job Stress X PRC-C	0.12	-.14 - .33
Job Stress X PRC-D	0.06	-.42 - .55
Job Stress X NRC-C	-0.13	-.45 - .33
Job Stress X NRC-D	0.25	-.23 - .95

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step. *PRC-C* = Positive Religious Coping, Continuous, *PRC-D* = Positive Religious Coping, Dichotomous, *NRC-C* = Negative Religious Coping, Continuous, *NRC-D* = Negative Religious Coping, Dichotomous
* $p < .05$.
** $p < .01$

Main effects. Hypothesis 8a indicated that higher levels of positive religious coping in response to job stress would predict lower levels of problem gambling symptoms. This hypothesis was not supported for either PRC-C (*B* = -.01, 95% CI [-.21 - .18]) or for PRC-D (*B* = .34, 95% CI [-.39 - 1.13]). Meanwhile, Hypothesis 8b stated that higher levels of negative religious coping in response to job stress would predict higher levels of problem gambling symptoms. The coefficient for NRC-C was not significant (*B* = .30, 95% CI [-.04 - .68]), but the coefficient for NRC-D supported this hypothesis (*B* = .82, 95% CI = .32 - 1.40]); the beta coefficient for NRC-D was large (Cohen, 1992). Further, the medium effect size indicated by the beta weight for NRC-C suggests that the nonsignificant finding for this variable was likely due to the wide span of the confidence interval.

Interaction effects. None of the interaction terms for religious coping were significant in the current MRA. Hypothesis 8c indicated that higher levels of positive religious coping in response to job stress would attenuate the relationship between job

stress and problem gambling symptoms. This hypothesis was not supported for either PRC-C (*B* = .12, 95% CI [-.14 - .33]) or for PRC-D (*B* = .06, 95% CI [-.42 - .55]). Hypothesis 8d stated that higher levels of negative religious coping in response to job stress would strengthen the relationship between job stress and problem gambling symptoms. This hypothesis was not supported for either NRC-C (*B* = -.13, 95% CI [-.45 - .33]) or for NRC-D (*B* = .25, 95% CI [-.23 - .95]).

Religious coping in the context of models predicting gambling behaviours. Two hierarchical regression analyses were conducted to assess the main and interactive effects of religious coping with loneliness and with job stress on gambling behaviours.

Religious coping with loneliness in predicting gambling behaviours. A hierarchical regression analysis was conducted to explore the main and interactive effects of loneliness and religious coping on gambling behaviours (see Table 19).

R^2values. In Block 1, gambling behaviours were regressed on demographic control variables, loneliness, and the three non-religious coping variables. In Block 2, the main effects for the religious coping variables were added, accounting for significant additional variance in outcome, ΔR^2 =.08, $\chi^2(4, n = 193) = 27.45$, $p < .001$. The three interaction terms for basic coping were entered in Block 3 as controls. Finally, in Block 4, the interactions between loneliness and religious coping were added. These interaction terms did not account for significant additional outcome variance, ΔR^2 =.04, $\chi^2(4, n = 193) = 3.97$, $p = .41$.

Main effects. Hypothesis 9a indicated that higher levels of positive religious coping in response to loneliness would predict lower levels of gambling behaviours. This hypothesis was not supported for PRC-C (*B* = .18, 95% CI [-.03 - .36]) or for PRC-D (*B*

Table 19
Loneliness and Religious Coping as Predictors of Gambling Behaviours (n = 205)

Variable	R^2	*B*	95% CI
Block 1	.44**		
Control Variables			
Loneliness		0.59**	.40 - .80
Problem-Focused Coping		0.15	-.18 - .38
Avoidance Coping		0.17*	.04 - .29
Emotional Approach Coping		-0.04	-.22 - .18
Block 2	.52**		
Control Variables			
Loneliness		0.58**	.40 - .79
Problem-Focused Coping		0.23	-.07 - .46
Avoidance Coping		0.02	-.18 - .22
Emotional Approach Coping		-0.13	-.30 - .08
Positive Religious Coping (PRC-C)		0.18	-.03 - .36
Positive Religious Coping (PRC-D)		-0.09	-.89 - .54
Negative Religious Coping (NRC-C)		0.43**	.20 - .66
Negative Religious Coping (NRC-D)		0.19	-.23 - .66
Block 3	.53		
Control Variables			
Loneliness		0.52**	.34 - .75
Problem-Focused Coping		0.19	-.16 - .44
Avoidance Coping		-0.01	-.21 - .20
Emotional Approach Coping		-0.11	-.32 - .13
Positive Religious Coping (PRC-C)		0.18	-.03 - .37
Positive Religious Coping (PRC-D)		0.10	-.97 - .57
Negative Religious Coping (NRC-C)		0.43**	.20 - .66
Negative Religious Coping (NRC-D)		0.26	-.21 - .73
Loneliness X Problem-Focused Coping		0.02	-.20 - .47
Loneliness X Avoidance Coping		0.07	-.11 - .28
Loneliness X Emotional Approach Coping		-0.10	-.48 - .05
Block 4	.57		
Control Variables			
Loneliness		0.61**	.39 - .81
Problem-Focused Coping		0.19	-.12 - .43
Avoidance Coping		0.06	-.14 - .26
Emotional Approach Coping		-0.09	-.29 - .13
Positive Religious Coping (PRC-C)		0.20*	.02 - .39

Positive Religious Coping (PRC-D)	-0.15	-1.04 - .57
Negative Religious Coping (NRC-C)	0.34**	.09 - .61
Negative Religious Coping (NRC-D)	0.04	-.39 - .54
Loneliness X Problem-Focused Coping	0.04	-.25 - .42
Loneliness X Avoidance Coping	0.02	-.19 - .28
Loneliness X Emotional Approach Coping	-0.15	-.46 - .04
Loneliness X PRC-C	0.06	-.16 - .25
Loneliness X PRC-D	0.54	(-).00 – 1.39
Loneliness X NRC-C	0.02	-.25 - .27
Loneliness X NRC-D	-0.02	-.66 - .61

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step. *PRC-C* = Positive Religious Coping, Continuous, *PRC-D* = Positive Religious Coping, Dichotomous, *NRC-C* = Negative Religious Coping, Continuous, *NRC-D* = Negative Religious Coping, Dichotomous
* $p < .05$.
** $p < .01$

= -.09, 95% CI [-.89 - .54]). Meanwhile, Hypothesis 9b stated that higher levels of negative religious coping in response to loneliness would predict higher levels of gambling behaviours. The coefficient for NRC-C was significant, and thus supported this hypothesis (*B* = .43, 95% CI [.20 - .66]); the effect size indicated by the beta weight suggested a medium effect size (Cohen, 1992). Nevertheless, the result for NRC-D was not significant (*B* = .19, 95% CI [-.23 - .66]).

Interaction effects. Hypothesis 9c indicated that higher levels of positive religious coping in response to loneliness would attenuate the relationship between loneliness and gambling behaviours. This hypothesis was not supported for PRC-C (*B* = .06, 95% CI [-.16 - .25]) or for PRC-D (*B* = .54, 95% CI [(-).00 – 1.39). Meanwhile, Hypothesis 9d indicated that higher levels of negative religious coping with loneliness would predict more gambling behaviours. This hypothesis was not supported for either NRC-C (*B* = .02, 95% CI [-.25 - .27]) or for NRC-D (*B* = -.02, 95% CI [-.66 - .61]).

Religious coping with job stress in predicting gambling behaviours. A hierarchical regression analysis was conducted to explore the main and interactive effects of job stress and religious coping on gambling behaviours (see Table 20).

R^2values. In Block 1, gambling behaviours were regressed on the demographic control variables, job stress, and the three non-religious coping variables. In Block 2, the main effects for the religious coping variables were added; these did not account for significant additional variance in outcome, ΔR^2 =.02, $\chi^2(4, n = 201) = 7.37$, p = .12. The three interaction terms for basic coping were entered in Block 3 as controls. Finally, in Block 4, the interactions between job stress and religious coping were added. These interaction terms did not account for significant additional outcome variance, ΔR^2 =.02, $\chi^2(4, n = 201) = 3.56$, p = .47.

Main effects. No significant main effects for religious coping were found in this analysis. Hypothesis 10a indicated that higher levels of positive religious coping in response to job stress would predict lower levels of gambling behaviours. This hypothesis was not supported for either PRC-C (B = .03, 95% CI [-.24 - .31]) or for PRC-D (B = .09, 95% CI [-.93 - 1.19]). Meanwhile, Hypothesis 10b stated that higher levels of negative religious coping in response to job stress would predict higher levels of gambling behaviours. This hypothesis was not supported for either NRC-C (B = .30, 95% CI [-.24 - .77]) or for NRC-D (B = .58, 95% CI [-.14 - 1.23]). However, the latter two beta coefficients suggested medium and large effect sizes, respectively (Cohen, 1992). Thus, it could be that the nonsignificant findings for these two variables may have been due to the wide span of the confidence intervals.

Interaction effects. No significant interaction effects were found for religious

Table 20
Job Stress and Religious Coping as Predictors of Gambling Behaviours (n = 205)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.37**		
Control Variables			
Job Stress		0.26*	.05 - .52
Problem-Focused Coping		-0.03	-.22 - .17
Avoidance Coping		0.28**	.07 - .48
Emotional Approach Coping		-0.29*	-.55 - -.06
Block 2	.39		
Control Variables			
Job Stress		0.13	-.10 - .41
Problem-Focused Coping		0.06	-.14 - .27
Avoidance Coping		0.14	-.13 - .39
Emotional Approach Coping		-0.34**	-.58 - -.10
Positive Religious Coping (PRC-C)		0.03	-.24 - .31
Positive Religious Coping (PRC-D)		0.09	-.93 – 1.19
Negative Religious Coping (NRC-C)		0.30	-.24 - .77
Negative Religious Coping (NRC-D)		0.58	-.14 – 1.23
Block 3	.42		
Control Variables			
Job Stress		0.23	-.04 - .52
Problem-Focused Coping		0.04	-.15 - .24
Avoidance Coping		0.01	-.30 - .32
Emotional Approach Coping		-0.42**	-.69 - -.12
Positive Religious Coping (PRC-C)		0.04	-.23 - .33
Positive Religious Coping (PRC-D)		0.25	-.71 – 1.30
Negative Religious Coping (NRC-C)		0.13	-.35 - .60
Negative Religious Coping (NRC-D)		0.35	-.28 - .97
Job Stress X Problem-Focused Coping		0.06	-.13 - .30
Job Stress X Avoidance Coping		0.21	-.07 - .42
Job Stress X Emotional Approach Coping		0.14	-.17 - .39
Block 4	.44		
Control Variables			
Job Stress		0.35	-.03 - .65
Problem-Focused Coping		0.05	-.15 - .26
Avoidance Coping		0.05	-.24 - .35
Emotional Approach Coping		-0.41**	-.67 - -.11
Positive Religious Coping (PRC-C)		0.09	-.21 - -.37
Positive Religious Coping (PRC-D)		0.27	-.82 – 1.52
Negative Religious Coping (NRC-C)		-0.03	-.62 – .60

Negative Religious Coping (NRC-D)	0.16	-.49 - .99
Job Stress X Problem-Focused Coping	0.05	-.14 - .30
Job Stress X Avoidance Coping	0.20	-.11 - .48
Job Stress X Emotional Approach Coping	0.13	-.21 - .37
Job Stress X PRC-C	0.18	-.11 - .46
Job Stress X PRC-D	0.53	-.24 – 1.11
Job Stress X NRC-C	-0.26	-.80 - .25
Job Stress X NRC-D	-0.33	-1.11 - .70

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step. *PRC-C* = Positive Religious Coping, Continuous, *PRC-D* = Positive Religious Coping, Dichotomous, *NRC-C* = Negative Religious Coping, Continuous, *NRC-D* = Negative Religious Coping, Dichotomous
* $p < .05$.
** $p < .01$

coping in the present analysis. Hypothesis 10c, which indicated that higher levels of positive religious coping in response to job stress would attenuate the relationship between job stress and gambling behaviours, was not supported for either PRC-C (*B* = .18, 95% CI [-.11 - .46]) or for PRC-D (*B* = .53, 95% CI [-.24 - 1.11]). However, the relatively large beta weights suggest that they failed to reach significance due to the wide span of the confidence intervals. Similarly, Hypothesis 10d, which stated that higher levels of negative religious coping in response to job stress would strengthen the relationship between job stress and gambling behaviours, was not supported for either NRC-C (*B* = -.26, 95% CI [-.80 - .25]) or for NRC-D (*B* = -.33, 95% CI [-1.11 - .70]). However, the relatively large beta weights for PRC-C, PRC-D, and NRC-C suggest that they may have failed to reach significance due to the wide span of the confidence intervals.

Religious coping in the context of models predicting depressive symptoms. Two hierarchical regression analyses were conducted to assess the main and interactive effects of religious coping with loneliness on depressive symptoms.

Religious coping with loneliness in predicting depressive symptoms. A hierarchical regression analysis was conducted to explore the main and interactive effects of loneliness and religious coping on depressive symptoms (see Table 21).

R^2values. In Block 1, depressive symptoms were regressed on the demographic control variables, loneliness, and the three non-religious coping variables. In Block 2, the main effects for the religious coping variables were added, and together they accounted for significant outcome variance, $\Delta R^2 = .10$, $\chi^2(4, n = 203) = 64.33$, $p < .001$. The three interaction terms for basic coping were entered in Block 3 as controls. Finally, in Block 4, the interactions between loneliness and religious coping were added. These interaction terms accounted for significant additional outcome variance, $\Delta R^2 = .02$, $\chi^2(4, n = 203) = 17.80$, $p < .01$.

Main effects. Hypothesis 11a indicated that higher levels of positive religious coping with loneliness would predict lower levels of depressive symptoms. This hypothesis was not supported for PRC-C ($B = .14$, 95% CI [.03 - .25]); in fact, the coefficient for this variable was significant in the opposite direction of the hypothesis. In other words, higher levels of positive religious coping with loneliness actually predicted higher levels of depressive symptoms. The effect size indicated by the beta coefficient for PRC-C was small (Cohen, 1992). The other positive religious coping variable in this analysis, PRC-D, was not significant ($B = .35$, 95% CI [-.05 - .77]). Meanwhile, Hypothesis 11b stated that higher levels of negative religious coping in response to

Table 21
Loneliness and Religious Coping as Predictors of Depressive Symptoms (n = 216)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.69**		
Control Variables			
Loneliness		0.49**	.37 - .60
Problem-Focused Coping		-0.05	-.22 - .09
Avoidance Coping		0.35**	.24 - .46
Emotional Approach Coping		0.01	-.15 - .16
Block 2	.79**		
Control Variables			
Loneliness		0.45**	.30 - .55
Problem-Focused Coping		0.06	-.15 - .20
Avoidance Coping		0.08	-.06 - .21
Emotional Approach Coping		-0.04	-.21 - .11
Positive Religious Coping (PRC-C)		0.14*	.03 - .25
Positive Religious Coping (PRC-D)		0.35	-.05 - .77
Negative Religious Coping (NRC-C)		0.48**	.33 - .65
Negative Religious Coping (NRC-D)		0.58**	.33 - .86
Block 3	.80*		
Control Variables			
Loneliness		0.50**	.38 - .60
Problem-Focused Coping		0.10	-.10 - .23
Avoidance Coping		0.11	-.05 - .23
Emotional Approach Coping		-0.06	-.19 - .12
Positive Religious Coping (PRC-C)		0.13**	.04 - .24
Positive Religious Coping (PRC-D)		0.32	-.06 - .75
Negative Religious Coping (NRC-C)		0.49**	.34 - .66
Negative Religious Coping (NRC-D)		0.53**	.28 - .81
Loneliness X Problem-Focused Coping		-0.08	-.21 - .06
Loneliness X Avoidance Coping		-0.12	-.21 - -.03
Loneliness X Emotional Approach Coping		0.08	-.04 - .20
Block 4 (Dataset 6)	.82**		
Control Variables			
Loneliness		0.55**	.42 - .65
Problem-Focused Coping		0.10	-.09 - .22
Avoidance Coping		0.06	-.10 - .19
Emotional Approach Coping		-0.03	-.17 - .13
Positive Religious Coping (PRC-C)		0.16**	.06 - .27
Positive Religious Coping (PRC-D)		0.37	-.03 - .80
Negative Religious Coping (NRC-C)		0.52**	.36 - .67

Negative Religious Coping (NRC-D)	0.65**	.39 - .94
Loneliness X Problem-Focused Coping	-0.09	-.21 - .08
Loneliness X Avoidance Coping	-0.01	-.13 - .14
Loneliness X Emotional Approach Coping	0.05	-.08 - .17
Loneliness X PRC-C	-0.02	-.11 - .07
Loneliness X PRC-D	0.23	-.04 - .49
Loneliness X NRC-C	-0.06	-.20 - .12
Loneliness X NRC-D	-0.48**	-.79 - -.20

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step. *PRC-C* = Positive Religious Coping, Continuous, *PRC-D* = Positive Religious Coping, Dichotomous, *NRC-C* = Negative Religious Coping, Continuous, *NRC-D* = Negative Religious Coping, Dichotomous
* $p < .05$.
** $p < .01$

loneliness would predict higher levels of depressive symptoms. This hypothesis was supported for both NRC-C (*B* = .48, 95% CI [.33 - .65]) and for NRC-D (*B* = .58, 95% CI [.33 - .86]). These beta coefficients reflected medium and large effect sizes, respectively.

To further explore these links between PRC variables and depressive symptoms, an additional regression analysis was conducted to test whether the association between PRC variables and depressive symptoms was due to the mediating effect of gambling problems. The results indicated that the coefficient for PRC-C remained significant after controlling for both PGSI and G-TLFB (*B* = .14, 95% CI [.04 - .25]). This suggests that the effect of PRC-C on depressive symptoms could not be attributed to higher levels of gambling pathology.

Interaction effects. The results of the current analysis did not support any of the hypothesized interactions for religious coping. Hypothesis 11c, which indicated that higher levels of positive religious coping in response to loneliness would attenuate the relationship between loneliness and depressive symptoms, was not supported for either

PRC-C (*B* = -.02, 95% CI [-.11 - .07]) or for PRC-D (*B* = .23, 95% CI [-.04 - .49]). Hypothesis 11d, which stated that higher levels of negative religious coping with loneliness would strengthen the relationship between loneliness and depressive symptoms, was not supported either. Specifically, the coefficient for the interaction between loneliness and NRC-C was not significant (*B* = -.06, 95% CI [-.20 - .12]); however, the coefficient for NRC-D was significant, but in the direction opposite to the hypothesis (*B* = -.48, 95% CI [-.79 - -.20]; see Figure 10). Further, the beta weight suggested a medium effect size (Cohen, 1992). The latter finding indicates that there was a weaker relationship between loneliness and depressive symptoms among individuals who endorsed some negative religious coping in response to loneliness.

Religious coping with job stress in predicting depressive symptoms. A hierarchical regression analysis was conducted to explore the main and interactive effects of job stress and religious coping on depressive symptoms (see Table 22).

R^2values. In Block 1, depressive symptoms were regressed on the demographic control variables, job stress, and the three non-religious coping variables. In Block 2, the main effects for the religious coping variables were added; these accounted for significant additional variance in outcome, ΔR^2 =.06, $\chi^2(4, n = 206) = 28.70$, $p < .001$. The three interaction terms for basic coping were entered in Block 3 as controls. Finally, in Block 4, the interactions between job stress and religious coping were added. These interaction terms did not account for significant additional outcome variance, ΔR^2 =.00, $\chi^2(4, n = 206) = 1.51$, $p = .82$.

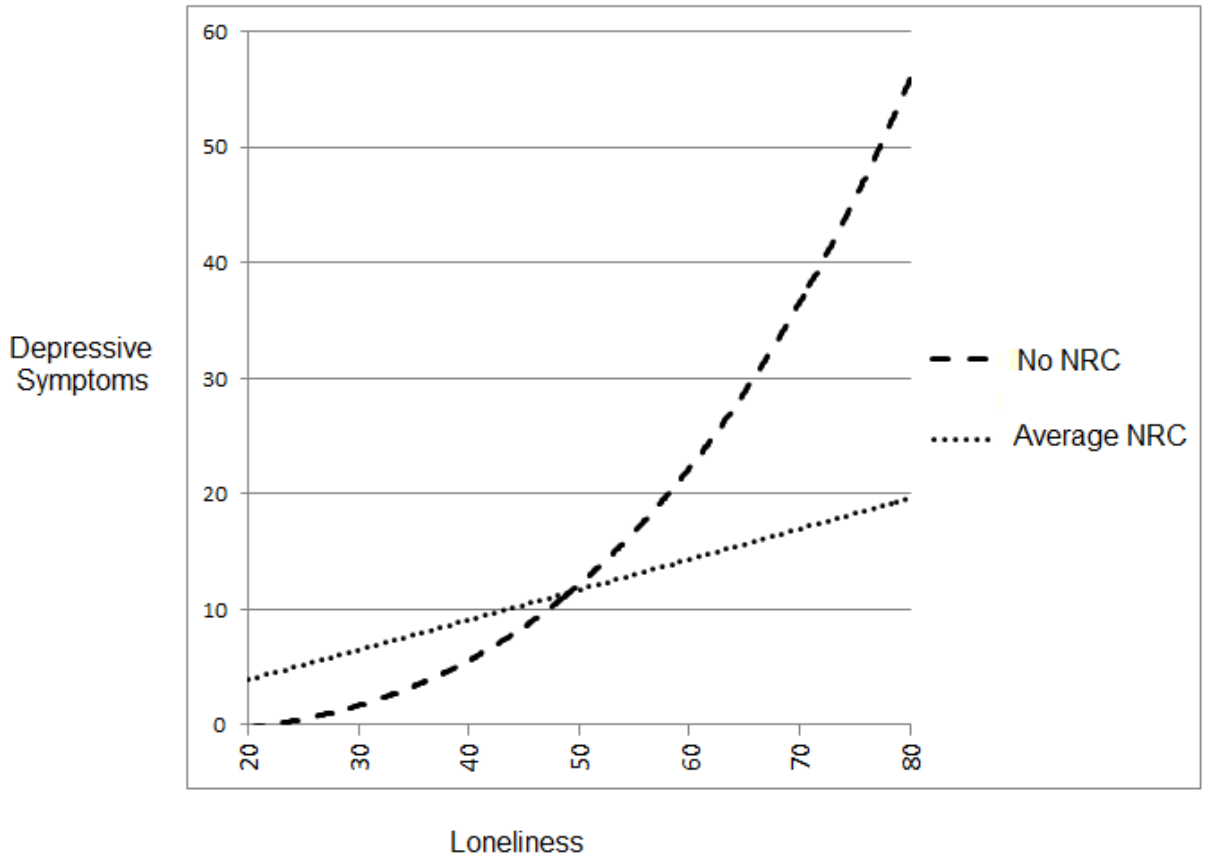

Figure 10. The interaction between loneliness and negative religious coping (NRC), dichotomous, in predicting depressive symptoms. The relationship between loneliness and depressive symptoms is plotted (a) for participants who did not endorse any NRC, and (b) at the average level of NRC among endorsers.

Table 22
Job Stress and Religious Coping as Predictors of Depressive Symptoms (n = 216)

Variable	R^2	*B*	95% Conf. Interval
Block 1	.67**		
Control Variables			
Job Stress		0.42**	.29 - .56
Problem-Focused Coping		-0.16**	-.28 - -.04
Avoidance Coping		0.25**	.11 - .41
Emotional Approach Coping		-0.20**	-.37 - -.06
Block 2	.73**		
Control Variables			
Job Stress		0.24**	.09 - .40
Problem-Focused Coping		-0.05	-.17 - .07
Avoidance Coping		0.04	-.16 - .20
Emotional Approach Coping		-0.26**	-.40 - -.13
Positive Religious Coping (PRC-C)		0.12	-.02 - .27
Positive Religious Coping (PRC-D)		0.14	-.29 - .69
Negative Religious Coping (NRC-C)		0.38**	.12 - .64
Negative Religious Coping (NRC-D)		0.78**	.35 – 1.21
Block 3	.73		
Control Variables			
Job Stress		0.27**	.11 - .45
Problem-Focused Coping		-0.06	-.17 - .07
Avoidance Coping		0.00	-.24 - .19
Emotional Approach Coping		-0.27**	-.42 - -.13
Positive Religious Coping (PRC-C)		0.13	-.01 - .28
Positive Religious Coping (PRC-D)		0.18	-.26 - .74
Negative Religious Coping (NRC-C)		0.35*	.06 - .64
Negative Religious Coping (NRC-D)		0.74**	.26 – 1.23
Job Stress X Problem-Focused Coping		0.06	-.07 - .20
Job Stress X Avoidance Coping		0.06	-.10 - .21
Job Stress X Emotional Approach Coping		-0.01	-.16 - .16
Block 4	.73		
Control Variables			
Job Stress		0.28**	.09 - .47
Problem-Focused Coping		-0.06	-.17 - .07
Avoidance Coping		0.00	-.25 - .20
Emotional Approach Coping		-0.27**	-.44 - -.13
Positive Religious Coping (PRC-C)		0.12	-.03 - .27
Positive Religious Coping (PRC-D)		0.15	-.33 - .88
Negative Religious Coping (NRC-C)		0.35*	.02 - .73

Negative Religious Coping (NRC-D)	0.68*	.15 – 1.29
Job Stress X Problem-Focused Coping	0.07	-.06 - .21
Job Stress X Avoidance Coping	0.04	-.16 - .26
Job Stress X Emotional Approach Coping	-0.01	-.18 - .17
Job Stress X PRC-C	-0.04	-.29 - .10
Job Stress X PRC-D	0.03	-.23 - .33
Job Stress X NRC-C	0.13	-.17 - .44
Job Stress X NRC-D	0.04	-.28 - .68

Note: Coping variables measured in response to a recalled experience of loneliness. *N* varies across steps of the hierarchical regression analysis. Starred values in R^2 column indicate significant ΔR^2 from previous step. *PRC-C* = Positive Religious Coping, Continuous, *PRC-D* = Positive Religious Coping, Dichotomous, *NRC-C* = Negative Religious Coping, Continuous, *NRC-D* = Negative Religious Coping, Dichotomous
* $p < .05$.
** $p < .01$

Main effects. Hypothesis 12a indicated that higher levels of positive religious coping in response to job stress would predict lower levels of depressive symptoms. This hypothesis was not supported for either PRC-C (*B* = .12, 95% CI [-.02 - .27]) or for PRC-D (*B* = .14, 95% CI [-.29 - .69]). On the other hand, Hypothesis 12b, which stated that higher levels of negative religious coping in response to job stress would predict higher levels of depressive symptoms, was fully supported. Indeed, results revealed significant coefficients for both NRC-C (*B* = .38, 95% CI [.12 - .64]) and for NRC-D (*B* = .78, 95% CI [.35 - 1.21]). These two beta coefficients reflected medium and large effect sizes, respectively (Cohen, 1992).

Interaction effects. Results of the present analysis revealed no significant interaction effects for religious coping. First, Hypothesis 12c indicated that higher levels of positive religious coping in response to job stress would attenuate the relationship between job stress and depressive symptoms. This hypothesis was not supported for either PRC-C (*B* = -.04, 95% CI [-.29 - .10]) or for PRC-D (*B* = .03, 95% CI [-.23 - .33]).

Meanwhile, Hypothesis 12d stated that higher levels of negative religious coping would strengthen the relationship between job stress and depressive symptoms. This hypothesis was not supported for either NRC-C (*B* = .13, 95% CI [-.17 - .44]) or for NRC-D (*B* = .04, 95% CI [-.28 - .68]).

Summary of Results for Study Hypotheses

Summaries of the significant and nonsignificant results for the stress-coping model are presented in Table 23. The six versions of the model are numbered one through six, for clarity. Similarly, summaries of the results for the religious coping variables are presented in Table 24.

Table 23
Summary of Hypotheses and Results for Stress-Coping Model

Model 1: Loneliness, Active and Avoidant Coping, and Problem Gambling Symptoms	
Hypotheses: Main Effects	Result
1a. Higher levels of Loneliness will predict higher levels of Problem Gambling Symptoms	Supported
1b. Higher levels of Problem-Focused Coping (Active Coping) in response to loneliness will predict higher lower of Problem Gambling Symptoms	*ns.*
1c. Higher levels of Emotional Approach Coping (Active Coping) in response to loneliness will predict lower levels of Problem Gambling Symptoms	*ns.*
1d. Higher levels of Avoidance Coping (Avoidant Coping) in response to loneliness will predict higher levels of Problem Gambling Symptoms	Supported
Hypotheses: Interaction Effects	
1e. Higher levels of Problem-Focused Coping (Active Coping) in response to loneliness will attenuate the relationship between Loneliness and Problem Gambling Symptoms	*ns.*
1f. Higher levels of Emotional Approach Coping (Active Coping) in response to loneliness will attenuate the relationship between Loneliness and Problem Gambling Symptoms	Supported
1g. Higher levels of Avoidance Coping (Avoidant Coping) in response to loneliness will strengthen the relationship between Loneliness and Problem Gambling Symptoms	*ns.*
Model 2: Job Stress, Active and Avoidant Coping, and Problem Gambling Symptoms	
Hypotheses: Interaction Effects	Result
2a. Higher levels of Job Stress will predict higher levels of Problem Gambling Symptoms	Supported
2b. Higher levels of Problem-Focused Coping (Active Coping) in response to job stress will predict lower levels of Problem Gambling Symptoms	*ns.*
2c. Higher levels of Emotional Approach Coping (Active Coping) in response to job stress will predict lower levels of Problem Gambling Symptoms	Supported

2d. Higher levels of Avoidance Coping (Avoidant Coping) in response to job stress will predict higher levels of Problem Gambling Symptoms	Supported
Hypotheses: Interaction Effects	
2e. Higher levels of Problem-Focused Coping (Active Coping) in response to job stress will attenuate the relationship between Job Stress and Problem Gambling Symptoms	*ns.*
2f. Higher levels of Emotional Approach Coping (Active Coping) in response to job stress will attenuate the relationship between Job Stress and Problem Gambling Symptoms	*ns.*
2g. Higher levels of Avoidance Coping (Avoidant Coping) in response to job stress will strengthen the relationship between Job Stress and Problem Gambling Symptoms	*ns.*
Model 3: Loneliness, Active and Avoidant Coping, and Gambling Behaviour	
Hypotheses: Main Effects	Result
3a. Higher levels of Loneliness will predict higher levels of Gambling Behaviour	Supported
3b. Higher levels of Problem-Focused Coping (Active Coping) in response to loneliness will predict higher lower of Gambling Behaviour	*ns.*
3c. Higher levels of Emotional Approach Coping (Active Coping) in response to loneliness will predict lower levels of Gambling Behaviour	*ns.*
3d. Higher levels of Avoidance Coping (Avoidant Coping) in response to loneliness will predict higher levels of Gambling Behaviour	Supported
Hypotheses: Interaction Effects	
3e. Higher levels of Problem-Focused Coping (Active Coping) in response to loneliness will attenuate the relationship between Loneliness and Gambling Behaviours	*ns.*
3f. Higher levels of Emotional Approach Coping (Active Coping) in response to loneliness will attenuate the relationship between Loneliness and Gambling Behaviours	*ns.*
3g. Higher levels of Avoidance Coping (Avoidant Coping) in response to loneliness will strengthen the relationship between Loneliness and Gambling Behaviours	*ns.*
Model 4: Job Stress, Active and Avoidant Coping, and Gambling Behaviours	
Hypotheses: Main Effects	Result

4a. Higher levels of Job Stress will predict higher levels of Gambling Behaviour	Supported
4b. Higher levels of Problem-Focused Coping (Active Coping) in response to job stress will predict lower levels of Gambling Behaviour	*ns*.
4c. Higher levels of Emotional Approach Coping (Active Coping) in response to job stress will predict lower levels of Gambling Behaviour	Supported
4d. Higher levels of Avoidance Coping (Avoidant Coping) in response to job stress will predict higher levels of Gambling Behaviour	Supported
Hypotheses: Interaction Effects	
4e. Higher levels of Problem-Focused Coping (Active Coping) in response to job stress will attenuate the relationship between Job Stress and Gambling Behaviours	*ns*.
4f. Higher levels of Emotional Approach Coping (Active Coping) in response to job stress will attenuate the relationship between Job Stress and Gambling Behaviours	*ns*.
4g. Higher levels of Avoidance Coping (Avoidant Coping) in response to job stress will strengthen the relationship between Job Stress and Gambling Behaviours	*ns*.
Model 5: Loneliness, Active and Avoidant Coping, and Depressive Symptoms	
Hypotheses: Main Effects	Result
5a. Higher levels of Loneliness will predict higher levels of Depressive Symptoms	Supported
5b. Higher levels of Problem-Focused Coping (Active Coping) in response to loneliness will predict higher lower of Depressive Symptoms	*ns*.
5c. Higher levels of Emotional Approach Coping (Active Coping) in response to loneliness will predict lower levels of Depressive Symptoms	*ns*.
5d. Higher levels of Avoidance Coping (Avoidant Coping) in response to loneliness will predict higher levels of Depressive Symptoms	Supported
Hypotheses: Interaction Effects	
5e. Higher levels of Problem-Focused Coping (Active Coping) in response to loneliness will attenuate the relationship between Loneliness and Depressive Symptoms	*ns*.
5f. Higher levels of Emotional Approach Coping (Active Coping) in	*ns*.

response to loneliness will attenuate the relationship between Loneliness and Depressive Symptoms	
5g. Higher levels of Avoidance Coping (Avoidant Coping) in response to loneliness will strengthen the relationship between Loneliness and Depressive Symptoms	*ns.*[a]
Model 6: Job Stress, Active and Avoidant Coping, and Depressive Symptoms	
Hypotheses: Main Effects	Result
6a. Higher levels of Job Stress will predict higher levels of Depressive Symptoms	Supported
6b. Higher levels of Problem-Focused Coping (Active Coping) in response to job stress will predict lower levels of Depressive Symptoms	Supported
6c. Higher levels of Emotional Approach Coping (Active Coping) in response to job stress will predict lower levels of Depressive Symptoms	Supported
6d. Higher levels of Avoidance Coping (Avoidant Coping) in response to job stress will predict higher levels of Depressive Symptoms	Supported
Hypotheses: Interaction Effects	
6e. Higher levels of Problem-Focused Coping (Active Coping) in response to job stress will attenuate the relationship between Job Stress and Depressive Symptoms	*ns.*
6f. Higher levels of Emotional Approach Coping (Active Coping) in response to job stress will attenuate the relationship between Job Stress and Depressive Symptoms	*ns.*
6g. Higher levels of Avoidance Coping (Avoidant Coping) in response to job stress will attenuate the relationship between Job Stress and Depressive Symptoms	*ns.*

Note. Cont. = Continuous, Dich. = Dichotomous. *ns*. = Not Supported.
[a] Significant in the opposite direction from the hypothesis.

Table 24
Summary of Hypotheses and Results for Religious Coping in the Context of the Stress-Coping Model

Model 1: Loneliness, Active and Avoidant Coping, and Problem Gambling Symptoms	
Hypotheses: Main Effects	Result
7a. Higher levels of Positive Religious Coping in response to loneliness will predict lower levels of Problem Gambling Symptoms	Cont.: *ns.* Dich.: *ns.*
7b. Higher levels of Negative Religious Coping in response to loneliness will predict higher levels of Problem Gambling Symptoms	Cont.: Supported Dich.: Supported
Hypotheses: Interaction Effects	
7c. Higher levels of Positive Religious Coping with loneliness will attenuate the relationship between Loneliness and Problem Gambling Symptoms	Cont.: *ns.* Dich.: *ns.*
7d. Higher levels of Negative Religious Coping with loneliness will strengthen the relationship between Loneliness and Problem Gambling Symptoms	Cont.: *ns.* Dich.: *ns.*
Model 2: Job Stress, Active and Avoidant Coping, and Problem Gambling Symptoms	
Hypotheses: Main Effects	Result
8a. Higher levels of Positive Religious Coping in response to job stress will predict lower levels of Problem Gambling Symptoms	Cont.: *ns.* Dich.: *ns.*
8b. Higher levels of Negative Religious Coping in response to job stress will predict higher levels of Problem Gambling Symptoms	Cont.: *ns.* Dich.: Supported
Hypotheses: Interaction Effects	
8c. Higher levels of Positive Religious Coping with job stress will attenuate the relationship between Job Stress and Problem Gambling Symptoms	Cont.: *ns.* Dich.: *ns.*
8d. Higher levels of Negative Religious Coping with job stress will strengthen the relationship between Job Stress and Problem Gambling Symptoms	Cont.: *ns.* Dich.: *ns.*
Model 3: Loneliness, Active and Avoidant Coping, and Gambling Behaviours	
Hypotheses: Main Effects	Result
9a. Higher levels of Positive Religious Coping in response to loneliness will predict lower levels of Gambling Behaviour	Cont.: *ns.* Dich.: *ns.*

9b. Higher levels of Negative Religious Coping in response to loneliness will predict higher levels of Gambling Behaviour	Cont.: Supported Dich.: *ns.*
Hypotheses: Interaction Effects	
9c. Higher levels of Positive Religious Coping with loneliness will attenuate the relationship between Loneliness and Gambling Behaviours	Cont.: *ns.* Dich.: *ns.*
9d. Higher levels of Negative Religious Coping with loneliness will strengthen the relationship between Loneliness and Gambling Behaviours	Cont.: *ns.* Dich.: *ns.*
Model 4: Job Stress, Active and Avoidant Coping, and Gambling Behaviours	
Hypotheses: Main Effects	Result
10a. Higher levels of Positive Religious Coping in response to job stress will predict lower levels of Gambling Behaviours	Cont.: *ns.* Dich.: *ns.*
10b. Higher levels of Negative Religious Coping in response to job stress will predict higher levels of Gambling Behaviours	Cont.: *ns.* Dich.: Supported
Hypotheses: Interaction Effects	
10c. Higher levels of Positive Religious Coping with job stress will attenuate the relationship between Job Stress and Gambling Behaviours	Cont.: *ns.* Dich.: *ns.*
10d. Higher levels of Negative Religious Coping with job stress will strengthen the relationship between Job Stress and Gambling Behaviours	Cont.: *ns.* Dich.: *ns.*
Model 5: Loneliness, Active and Avoidant Coping, and Depressive Symptoms	
Hypotheses: Main Effects	Result
11a. Higher levels of Positive Religious Coping in response to loneliness will predict lower levels of Depressive Symptoms	Cont.: *ns.*[a] Dich.: *ns.*
11b. Higher levels of Negative Religious Coping in response to loneliness will predict higher levels of Depressive Symptoms	Cont.: Supported Dich.: Supported
Hypotheses: Interaction Effects	
11c. Positive Religious Coping with loneliness will attenuate the relationship between Loneliness and Depressive Symptoms	Cont.: *ns.* Dich.: *ns.*
11d. Higher levels of Negative Religious Coping with loneliness will strengthen the relationship between Loneliness and Depressive Symptoms	Cont.: *ns.* Dich.: *ns.*[a]
Model 6: Job Stress, Active and Avoidant Coping, and Depressive Symptoms	
Hypotheses: Main Effects	Result
12a. Higher levels of Positive Religious Coping in response to job	Cont.: *ns.*

stress will predict lower levels of Depressive Symptoms	Dich.: *ns.*
12b. Higher levels of Negative Religious Coping in response to job stress will predict higher levels of Depressive Symptoms	Cont.: Supported Dich.: Supported
Hypotheses: Interaction Effects	
12c. Positive Religious Coping with job stress will attenuate the relationship between Job Stress and Depressive Symptoms	Cont.: *ns.* Dich.: *ns.*
12d. Higher levels of Negative Religious Coping with job stress will strengthen the relationship between Job Stress and Depressive Symptoms	Cont.: *ns.* Dich.: *ns.*

Note. Cont. = Continuous, Dich. = Dichotomous, *ns*. = Not Supported.
[a] Significant in the opposite direction from the hypothesis.

CHAPTER V

Discussion

The purpose of the present study was to explore specific stressors and coping strategies as predictors of outcomes in order to identify specific stress-coping processes for attention in future problem gambling research. Two sets of exploratory hypotheses were examined. The first set employed Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) as a conceptual framework to examine the main and interactive effects of stress, active coping, and avoidant coping on outcomes. The second set of hypotheses examined the main and interactive effects of positive and negative religious coping in the context of Wills' model.

In the first set of hypotheses, six versions of Wills' stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985) were tested to explore the relationships between specific stress-coping processes and three outcomes (i.e., gambling symptoms, gambling behaviours, and depressive symptoms). It was posited that stressor variables would predict higher levels of the outcomes, and that active and avoidant coping would predict lower and higher levels of the outcomes, respectively. It was also hypothesized that active coping would attenuate the relationship between stress and outcomes, while avoidant coping would strengthen this link. Six versions of the proposed stress-coping model were tested in total, one for each stressor (i.e., loneliness and job stress) in relation to three outcome variables (i.e., gambling symptoms, gambling behaviours, and depressive symptoms).

The second set of hypotheses examined the main and interactive effects of positive and negative religious coping on the three outcomes in the context of Wills'

stress-coping model (Wills & Hirky, 1996; Wills & Shiffman, 1985). It was hypothesized that positive religious coping would negatively predict the three outcome variables, both directly and by attenuating the relationship between stressors and outcomes. Meanwhile, it was hypothesized that negative religious coping would positively predict the three outcome variables. All effects of religious coping variables were hypothesized to be significant over and above contributions of variables in the stress-coping model.

The present section discusses findings and potential interpretations. Specific categories of variables (e.g., active coping) are presented together to facilitate comparisons of similar hypotheses across the six versions of the proposed model.

The Stress-Coping Model of Problem Gambling

Main effects.

Stress. Both loneliness and job stress predicted higher levels of problem gambling symptoms, gambling behaviours, and depressive symptoms. Across models, the effect sizes for the contribution of loneliness to outcomes were medium to large, suggesting that loneliness may be a particularly salient contributor to outcomes among frequent gamblers. These findings are generally consistent with previous literature (e.g., Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Gomes & Pascual-Leone, 2009). Meanwhile, the contribution of job stress to outcomes showed small to medium effect sizes in the current study, which is also generally consistent with previous reports (e.g., Dragano, Moebus, Jockel, Erbel, & Seigrist, 2008; Wu & Wong, 2008). The current results also corroborate one aspect of Lightsey and Hulsey's (2002) findings, which was that life stress predicted problem gambling symptoms among low impulsive males. Further, these results provide additional support for the applicability of Wills' stress-coping model

(Wills & Hirky, 1996; Wills & Shiffman, 1985) to problem gambling behaviours. Finally, the robust findings for these two predictors' impacts on the outcome variables support the validity of assessing coping in relation to instances of loneliness and job stress in the current study.

Active coping. Active coping has been defined as "responses that involve investment of effort in dealing with the problem" (Wills & Hirky, 1996, p. 28). Emotional approach coping and problem-focused coping were posited as subtypes of active coping in the current study.

Emotional approach coping. Emotional approach coping is classified as a form of emotion-focused coping, the latter of which is defined as "the regulation of stressful emotions" (Folkman & Lazarus, 1980, p. 223). Previous studies have shown that emotion-focused coping predicts higher levels of problem gambling (e.g., Bergevin et al., 2006; Gupta et al., 2004; Lightsey & Hulsey, 2002); however, the measures used in these studies have been criticized for being confounded with psychopathology (Stanton et al., 1994). To address this limitation, a more valid measure of emotion-focused coping, the Emotional Approach Coping Scale (EACS; Stanton et al., 2000) was used in the present study. The authors define emotional approach coping as "processing and expressing emotions associated with stressful events" (Stanton et al., 1994, p. 351). In the current analyses, emotional approach coping was negatively associated with outcomes when used in response to job stress; meanwhile, the main effects of emotional approach coping with loneliness were not significant. Although the effect sizes for emotional approach coping with job stress were small, this finding was replicated across all three job stress models, and thus it warrants some discussion.

The significant results for emotional approach coping with job stress are consistent with previous findings from the occupational stress literature. Specifically, past studies have found that when employees are required to suppress stressful emotions at work, they experience feelings of inauthenticity (Erickson & Ritter, 2001), which in turn predict negative affectivity (Erickson & Wharton, 1997). Thus, individuals who are able to express their feelings regarding job stress may show less psychopathology compared to those who do not. In the current data, the negative relationships between emotional approach coping with job stress and outcomes were primarily due to emotional expression among male participants. This particular finding corroborates results from a meta-analysis of 13 studies showing that random assignment to a trauma-related emotional expression writing intervention produced greater physical and mental health benefits for men compared to women (Smyth, 1998).

It is interesting that emotional approach coping with job stress was a significant predictor of all outcomes, whereas no such effects were found for emotional approach coping with loneliness. One possible interpretation for this finding is that the possible benefits of emotional approach coping in this sample were limited to scenarios involving job-related stressors. However, this explanation conflicts with evidence showing that emotional processing and expression reduce psychiatric symptomatology when used to address unmet interpersonal needs (e.g., Paivio & Greenberg, 1995). A second explanation for this result could be that processing one's emotions and expressing them to others leads to adaptive outcomes by decreasing feelings of loneliness. Because the three models that included emotional approach coping with loneliness also included

loneliness as a separate predictor, such an effect would not have been apparent in the context of the model.

Of note, the current study is the first in the gambling literature to suggest an adaptive effect of emotion-focused coping. Although previous studies have found that emotion-focused coping was correlated with higher levels of problem gambling (e.g., Lightsey & Hulsey, 2002; Nower et al., 2004), these studies used traditional measures of emotion-focused coping. As discussed earlier, these measures have been denounced as being confounded with pathological outcomes (Stanton et al., 1994). More specifically, the emotional expression items on traditional measures of emotion-focused coping generally reflect maladaptive processes (e.g., "take it out on other people;" Endler & Parker, 1990) or processes that are confounded with pathological outcomes (e.g., "I get upset and let my emotions out;" Carver et al., 1989). Meanwhile, the emotional expression items on the EACS (Emotional Approach Coping Scale; Stanton et al., 2000) simply refer to emotional expression (e.g., "I expressed the feelings I was having"), or to the deliberate and thoughtful articulation of feelings (e.g., "I took time to express my emotions" and "I found a way to express my emotions;" Stanton et al., 2000). The EACS thus measures forms of emotional expression that are generally more adaptive, or at least more neutral, than those assessed by traditional emotion-focused coping scales. Indeed, as expected, the EACS showed negative associations with outcomes when measured in response to an instance of job stress. It should be emphasized, however, that the effect sizes for these findings were small, and the coefficients for emotional approach coping with loneliness were not significant. Further research is thus needed to confirm the current results.

Problem-focused coping. Problem-focused coping has been defined as "the management or alteration of the person-environment relationship that is the source of stress" (Folkman & Lazarus, 1980, p. 223). In the current study, there were two significant findings for problem-focused coping. Specifically, problem-focused coping with job stress predicted lower levels of problem gambling symptoms and depressive symptoms. However, these effect sizes were small, and the coefficients for problem-focused coping were not significant in the other four models.

The interpretation of this pattern of findings is unclear. One could speculate that problem-focused coping was more predictive of outcomes when used in response to job stress than when used in response to loneliness. However, the fact that problem-focused coping with job stress was not associated with gambling behaviours makes this interpretation less plausible. Alternatively, there may simply have been a relatively weak association between problem-focused coping and outcomes in the current sample, and thus random variation was sufficient to produce some nonsignificant results. In turn, the weak association between problem-focused coping and outcomes may have been due in part to the inclusion of stress in each regression model. Specifically, to the extent that problem-focused coping affected outcomes by reducing stress, its contribution would not have been evident. Consistent with this theory, many of the current problem-focused coping items reflect attempts to reduce or eliminate the stressor (e.g., "I concentrated my efforts on doing something about it;" Carver et al., 1989).

Avoidant coping. Avoidance coping is classified as a subtype of the higher-order category of avoidant coping. In the present study, avoidance coping was defined as "attempts to avoid actively confronting the problem…or to indirectly reduce emotional

tension" (Billings & Moos, 1981, p. 141). Avoidance coping with both loneliness and job stress significantly predicted higher levels of all three outcome variables, with effect sizes ranging from small to medium. These results are consistent with previous literature, which has shown a positive relationship between avoidance coping and gambling problems (e.g., Bergevin et al., 2006; Getty et al., 2000; McCormick, 1994; Nower et al., 2004) and between avoidance coping and depressive symptoms (Dunkley, Sanislow, Grilo, & McGlashan, 2006; Getty et al., 2000; Holahan, Moos, Holahan, Brennan, & Schutte, 2005). The consistent findings in the present study support the conjecture that the effects of avoidance coping may be less influenced by context than other forms of coping (Shepherd & Dickerson, 2001).

In addition, most previous studies examined the bivariate relationship between avoidance coping and problem gambling, and thus they could not rule out the effect of stress as a third variable. The current study is the first to show a relationship between avoidance coping and problem gambling while controlling for stress. The present findings thus offer more rigorous empirical evidence for a link between avoidance coping and gambling pathology.

Interaction effects. The stress-coping model of problem gambling posited that active coping would attenuate the relationships between stressors and outcomes and that avoidant coping would exacerbate these relationships. The results of these analyses revealed few significant interaction effects; however, two significant findings were observed.

Emotional approach coping attenuates the relationship between loneliness and problem gambling symptoms. The results supported the hypothesis that emotional approach coping with loneliness would attenuate the relationship between loneliness and problem gambling symptoms. It should be noted that although this finding was significant, it reflected a small effect that was not corroborated across models; thus, the following interpretations are made with caution.

An examination of the plotted interaction revealed little or no relationship between loneliness and PGSI among participants endorsing high levels of emotional approach coping; however, among participants endorsing less emotional approach coping, loneliness showed a strong relationship with PGSI. Although causality cannot be inferred based on the present data, one could speculate that emotional approach coping reduced problem gambling symptoms in response to loneliness. This finding is consistent with the theory that individuals who use less emotional approach coping are less aware of their loneliness, and are thus more likely to respond maladaptively; conversely, those who are able to attend to and express such feelings may be less compelled to engage in addictive behaviours in response to loneliness.

The finding that emotion-focused coping may mitigate the impact of loneliness on problem gambling symptoms stands in contrast to Lightsey and Hulsey's (2002) results, which showed that emotion-focused coping strengthened the link between stress and problem gambling symptoms. However, as discussed earlier, these authors used a traditional measure of emotion-focused coping that was confounded with pathological outcomes, which likely explains this discrepancy.

Avoidance coping attenuates the relationship between loneliness and depressive symptoms. Contrary to the hypothesis that avoidance coping would strengthen the relationship between loneliness and depressive symptoms, the present results revealed that avoidance coping with loneliness slightly attenuated the relationship between loneliness and depressive symptoms. This finding was unexpected, given previous reports that stress predicted negative outcomes more strongly among people using more avoidance coping (Cooper et al., 1992; Cronkite & Moos, 1984; Veenstra et al., 2007). This finding does not lend itself to an intuitive explanation. It could be speculated that individuals who use avoidance coping are less emotionally aware and thus less reliable when reporting both loneliness and depressive symptoms. However, given the small effect size and the fact that this finding was barely significant, this finding may well have been due to chance. Thus, additional interpretations are deferred pending further investigation.

Religious Coping

Main effects.

Positive religious coping. Positive religious coping is defined as "an expression of a sense of spirituality, a secure relationship with God, a belief that there is meaning to be found in life, and a sense of spiritual connectedness with others" (Pargament et al., 1998, p. 712). The results did not support the hypothesis that higher levels of positive religious coping would predict lower levels of problem gambling, gambling behaviour, and depressive symptoms. Some of the nonsignificant findings for positive religious coping may have been attributable to the imprecise estimates of the coefficients (e.g., see Table 18 and 21). Interestingly, however, higher levels of positive religious coping with

loneliness among endorsers (i.e., PRC-C) actually predicted significantly more depressive symptoms, even after controlling for gambling pathology. This effect was in the opposite direction from what was hypothesized and was surprising, given the large body of evidence suggesting that positive religious coping is linked to adaptive outcomes across a range of populations (Ano & Vasconcelles, 2005). Again, however, the small effect size for the finding indicates that caution is warranted in interpreting this result. Further, if it reflects a true effect, the inference that positive religious coping has a deleterious effect on emotional well-being in this population seems unlikely; rather, alternative explanations seem more tenable. For instance, it could be that individuals who are more concerned about their gambling behaviours are both (a) more vulnerable to depression due to feelings of guilt or remorse, and (b) more likely to use positive religious coping in an attempt to reconcile with God following irresponsible gambling behaviour. Further research is required to test this hypothesis and to more fully explain this effect.

Negative religious coping. Negative religious coping is defined as "a less secure relationship with God, a tenuous and ominous view of the world, and a religious struggle in the search for significance" (Pargament et al., 1998, p. 712). The current results generally supported the hypothesis that more negative religious coping in response to loneliness or job stress would predict more problem gambling symptoms, gambling behaviours, and depressive symptoms. The subset of nonsignificant findings for the main effects of negative religious coping may have been due in part to the imprecise estimation of the coefficients (which in turn may have been due to the strong correlation between negative religious coping and avoidance coping with job stress). However, significant findings for negative religious coping were often evident despite very large confidence

intervals (see Tables 17-22). Negative religious coping was also a significant predictor of outcomes while controlling for demographic variables, including strength of faith, stress and nonreligious coping variables, and positive religious coping. Moreover, the fact that more negative religious coping among endorsers (i.e., NRC-C) was predictive of outcomes in four of the six models is particularly striking, given the small number of participants included in these analyses (n = 74; n = 63). Further, negative religious coping variables were positively associated with maladaptive outcomes across both stressors. To the extent that this finding reflects a causal relationship, it suggests that negative religious coping may show similar effects across different stressors.

The current findings are consistent with previous investigations showing that negative religious coping is associated with poorer outcomes in substance-dependent populations (e.g., Conners et al., 2006) and in the general population (Ano & Vasconcelles, 2005). Among gamblers, negative religious coping may lead to gambling pathology by increasing distress, which may encourage gambling in order to dissociate from one's aversive emotions (Beaudoin & Cox, 1999; Farrelly et al., 2007). If gambling involves being around other gamblers, this social context may diffuse feelings of guilt or shame associated with negative religious coping by normalizing this behaviour. Paradoxically, gambling behaviour may in turn contribute to the feeling that one has sinned, leading the individual to appraise other stressors as reflecting punishment from God. This vicious circle may account for the relatively consistent findings for negative religious coping in the present data.

Interaction effects. It was hypothesized that positive religious coping would attenuate the links between stressors and outcome variables and that negative religious

coping would exacerbate these links. The results for religious coping revealed few interaction effects; however, one finding warrants attention.

Negative religious coping attenuates the relationship between loneliness and depressive symptoms. Contrary to the hypothesis that negative religious coping would strengthen the link between loneliness and depressive symptoms, the relationship between loneliness and depressive symptoms was actually attenuated among individuals who endorsed some negative religious coping with loneliness (i.e., NRC-D). This finding was only detected in one of the six regression models; however, the effect size was medium, and the confidence interval for the beta coefficient (95% CI [-.79 - -.20]) indicated that this finding was very unlikely to have been due to chance. When the interaction effect was plotted, it reflected a linear positive relationship between loneliness and depressive symptoms among participants reporting an average level of negative religious coping with loneliness. Meanwhile, among participants reporting no negative religious coping with loneliness, the plot revealed a curvilinear relationship, wherein the association between loneliness and depressive symptoms was stronger at higher levels of loneliness. In other words, all participants showed a positive association between loneliness and depressive symptoms; however, for non-endorsers, this relationship was particularly pronounced, especially at higher levels of loneliness.

The implications of this interesting finding are unclear. If the causal assumptions of the proposed model are maintained, this result would suggest that negative religious coping may be an adaptive way of coping with loneliness, which conflicts with the conceptualization of this variable as maladaptive. Further, the discrepancy between main and interaction effects of negative religious coping with loneliness on depressive

symptoms indicates a complex relationship between these variables. Specifically, although endorsers reported more depressive symptoms overall, they also showed a weaker relationship between loneliness and depression.

One possible explanation for this result is that negative religious coping offers the hope of reconciliation with God or a higher power. For instance, items such as "wondered what I did for God to punish me" and "felt punished by God for my lack of devotion" (Pargament et al., 1998) may imply that certain actions on the part of the individual could convince God to reverse the situation that caused one's loneliness. Hope of reconciliation may in turn mitigate the deleterious effect of loneliness on emotional well-being. However, this explanation is merely speculative; further research is necessary to replicate and elucidate this interesting finding.

Limitations of the Present Study

The results of the present study offer important contributions to the current knowledge regarding risk and protective factors for problem gambling. By addressing conceptual and methodological limitations of previous research, this investigation offered a more rigorous examination of the relationships between stressors, coping methods, and outcomes in this population. The current design also provided preliminary insights regarding the contributions of emotional approach and religious coping, which proved to be two potentially important coping methods for inclusion in future work. Nevertheless, several methodological limitations should be considered in the interpretation of the results. The current section considers these limitations.

First, the issue of family-wise error must be considered. Due to the large number of hypotheses, some significant findings are expected to occur due to chance alone.

However, this limitation was deemed to be partly a function of the exploratory nature of the present study and the objective of investigating a range of specific stress-coping processes in the hope of offering potential directions for future research. Thus, to address this issue, interpretations of results were based on effect sizes as well as statistical significance. Clinical implications of the findings are suggested only as speculative possibilities pending confirmation and clarification of the current results (see Clinical Implications of the Present Study, p. 89). Nevertheless, precautions are needed in reading the findings of this study to guard against drawing conclusions that might have been due to chance alone.

An additional limitation is the use of non-experimental cross-sectional data, which precludes causal inference. Cross-sectional designs are common practice in the literature on coping and problem gambling, and the current study employed a multivariate model to help address some of the drawbacks of this methodology. Nevertheless, alternative causal explanations for the present findings cannot be ruled out. For instance, the significant main effects of coping on outcomes may reflect the influence of the outcome variables on coping. The significant interaction effects may be interpreted in this manner as well (e.g., habitual use of gambling in response to stress may reduce opportunities to learn adaptive coping skills). When discussing interactions in this document, the terms “attenuated” and “strengthened” are used only for linguistic simplicity, and cannot be taken to imply causal relationships. Further, third variables such as personality traits may have influenced both coping and outcomes (see Coyne & Racioppo, 2000). To account for the possible influence of third variables in the present study, both stress and coping variables were included in each regression model.

Hypotheses were also tested while controlling for a number of demographic variables. Further, the interaction effects were tested in part to permit a more rigorous test of coping effectiveness. Despite these precautions, however, the current data do not permit causal inference. Longitudinal and experimental studies are needed to clarify and confirm the results of the present study.

Another limitation of the current study is that there were relatively strong correlations between stressors and coping variables. Consequently, the range of values for the stress x coping interaction terms was restricted, conditional on the main effects of stress and coping. This likely reduced the power to detect interaction effects. Thus, the nonsignificant findings for the interaction terms do not necessarily reflect the absence of interaction effects; rather, the results are inconclusive. Indeed, strong correlations between stress and coping could explain some of the previous nonsignificant findings in the literature testing interaction models.

Relatedly, the current model does not permit the observation of effects of coping on outcomes that are mediated by stressor variables. For instance, as discussed earlier, emotional approach coping with loneliness may have affected outcomes by decreasing loneliness; however, such an effect could not have been detected in the context of the model because loneliness was controlled. All main effects of coping must be considered with this in mind.

Another potential limitation of the present study relates to the measurement of coping. Coping was measured by asking participants how they coped with specific instances of loneliness and job stress. These reports were assumed to provide an approximation of participants' habitual coping strategies when faced with these two

categories of stressors; however, coping methods used in response to a specific instance of loneliness or job stress may not be representative of how one typically copes with that stressor. Further, if there was a systematic bias in how participants selected their scenarios, this could have skewed the results. The methodological advantages of measuring coping in relation to specific recalled stressors were nevertheless deemed to outweigh the disadvantages, as this approach permitted more valid and practically applicable results (see Coyne & Racioppo, 2000).

Another point to consider is that only 62 (29%) of respondents actually responded to the open-ended questions regarding their recalled stressor. The typical response rate for this type of question is difficult to determine. However, such a low response rate could have affected the results. As discussed in the Methods section, the open-ended questions were included to activate the cognitive and emotional processes that were present during the stressful event, thus improving participants' recollection of their coping responses (see Henderson et al., 2009). Because so few participants answered these questions, it is possible that their emotional processes were not optimally activated. It is also possible that these processes were more activated for some participants than for others (i.e., for those who wrote about their recalled stressor), resulting in more valid and reliable data for certain types of participants.

In addition, participants in the present study were predominantly young, educated, Christian, and Caucasian. Thus, the findings may not apply to frequent gamblers outside this demographic. Further research is needed to test the current hypotheses with different populations of gamblers. Moreover, the current findings may not generalize to clinical samples of problem gamblers, as the current sample was recruited from the general

population and the level of gambling pathology varied widely across participants (Jeyakumar, 2005). Further research is needed to test the hypotheses in the present study among problem gamblers who are seeking treatment.

Finally, particular caution may be warranted in applying the religious coping results to individuals of diverse faiths, given that nearly three quarters of participants were Christian and were responding to a measure designed to assess religious coping among Judeo-Christian populations. Further research is thus needed to clarify the roles of positive and negative religious coping among individuals of diverse religious backgrounds. A separate but related issue is whether the non-applicability of the religious coping variables for some individuals may have influenced the results. The fact that strength of faith and Judeo-Christian religion were both included as control variables partly accounted for this issue. In addition, two variables were calculated for each religious coping variable. Thus, continuous religious coping scores (i.e., PRC-C and NRC-C) were only calculated for individuals who endorsed a particular form of religious coping. Meanwhile, non-endorsement of a particular religious coping variable was reflected in lower values on the dichotomous religious coping scores (i.e., PRC-D and NRC-D). Given these design considerations, non-applicability of religious coping is unlikely to have had a substantial effect on the results.

Implications for Future Research

The purpose of the present investigation was to identify promising directions for future research on coping and problem gambling. The current section thus presents nonreligious and religious stress-coping processes that were identified in this study as potential candidates for further investigation Methodological recommendations for future

research are then presented, including suggestions for online research with problem gamblers.

Nonreligious stress-coping processes.

Loneliness and job stress predict maladaptive outcomes. The current results showed that both loneliness and job stress were strong predictors of outcomes across all six models, which suggests that these are both salient psychosocial risk factors that warrant attention in future problem gambling research. Longitudinal designs are needed to confirm the causal direction of these relationships. Further research may also help assess which aspects of loneliness and job stress are most salient to outcomes in gamblers and problem gamblers. For instance, as discussed earlier (see Loneliness and Problem Gambling, p. 26), there are a number of reasons why loneliness may lead to excessive gambling, such as a desire for social contact, feelings of inferiority, and aversive affective symptoms. It would be useful to identify the reasons that are most relevant, keeping in mind that such relationships may depend on the specifics of the stressful encounter, the emotions elicited by the stressor, and the gambling activity or setting. In addition, the significant results for loneliness and job stress suggest that the identification of coping strategies to address these two stressors among gamblers and problem gamblers may be of key importance for future investigations.

Avoidance coping predicts maladaptive outcomes. The results of the present study corroborated previous findings that avoidance coping is a robust predictor of gambling pathology and depressive symptoms. In the current study, avoidance coping predicted outcomes across all models, even after controlling for stress and demographic variables. Additional in-depth work is recommended to assess the causal relationships

between these variables. Although longitudinal designs are ideally suited for this purpose, additional cross-sectional studies may help to rule out the effect of third variables, such as personality factors, emotional resources, and self-efficacy.

The robust relationships between avoidance coping and outcomes, both in previous studies and in the present one, suggest that an additional line of investigation may be to identify cognitive processes that may contribute to avoidance coping among problem gamblers. For instance, past research has shown that problem gamblers' self-perceptions in gambling settings can be subject to specific types of cognitive distortions (e.g., entitlement, illusions of control, selective memory; Joukhador et al., 2004; Toneatto, 1999). It would be interesting to assess whether problem gamblers exhibit such distortions in other settings as well, and if so, whether these may contribute to avoidance coping in these other life areas.

Emotional approach coping with job stress predicts adaptive outcomes. Results of the current study suggest that male participants who used emotional expression to cope with an instance of job stress endorsed lower levels of problem gambling symptoms, gambling behaviours, and depressive symptoms. Thus, one implication for future research relates to the potential benefits of using the Emotional Approach Coping Scale (EACS; Stanton et al., 2000) to assess emotion-focused coping among gamblers and problem gamblers. Specifically, the use of this instrument may permit more clarity in the interpretation of findings regarding emotion-focused coping in these samples. The excellent reliability coefficients for the EACS in the present study ($\alpha = .93$ in relation to both stressors) further support the potential utility of this instrument for research on coping and problem gambling.

In addition to confirming the present findings, future researchers may consider examining the mechanisms through which emotional expression may have influenced outcomes in the present study. For example, emotional expression may have a number of active ingredients, such as (a) releasing suppressed emotions, (b) seeking comfort and validation from others, (c) strengthening interpersonal relationships, (d) enforcing personal boundaries, and (e) obtaining practical assistance. Experimental investigations with frequent gamblers examining the immediate and delayed effects of different forms of emotional expression (e.g., disclosure to another person; writing about one's emotional experience) may help to isolate the mechanisms through which emotional expression may affect outcomes. Such an approach may also help to clarify the causal direction of the relationships observed in the current study.

Finally, future researchers may wish to explore the gender difference in the current findings for emotional expression in response to job stress. For example, responses to the open ended questions in the current study suggested that anger was the primary emotional response to job stress; thus, future research could investigate whether the expression of anger is associated with more adaptive outcomes among men compared to women. In general, understanding the mechanisms through which emotional expression may affect outcomes among frequent gamblers may also help to explain this gender difference.

Emotional approach coping attenuates the link between loneliness and problem gambling symptoms. The significant interaction effect for emotional approach coping with loneliness is another finding that may benefit from further investigation. Given the small effect size for this stand-alone finding, confirmation of this effect is necessary

before more comprehensive work is warranted. Assuming that this hypothesis is supported by future studies, this interaction may be examined in relation to different facets of loneliness (i.e., lacking companionship; feeling left out; feeling isolated from others) and in relation to other types of interpersonal stressors (e.g., conflict). Experimental studies involving the manipulation of emotional processing and emotional expression in gamblers' daily lives may lend further confidence to the theory that emotional approach coping mitigates the impact of loneliness on gambling pathology.

Religious stress-coping processes.

Negative religious coping predicts maladaptive outcomes. Negative religious coping among frequent gamblers represents another important avenue of investigation. Further research is needed to corroborate the finding that negative religious coping predicted higher levels of outcomes across most of the models in the current study. To help rule out the influence of third variables, constructs that may be linked to both negative religious coping and outcomes and are unlikely to act as mediators of this relationship should be included in future studies (e.g., insecure attachment style). Further, using a more comprehensive measure of religious coping (e.g., the RCOPE; Pargament et al., 2000) would help to identify specific components of this variable that may be particularly salient to gambling outcomes and depressive symptoms among frequent gamblers. Investigators may also wish to test the mediating effect of nonreligious processes (e.g., self-blame).

Negative religious coping attenuates the link between loneliness and depressive symptoms. It may also be beneficial to investigate why some endorsement of negative religious coping appeared to mitigate the effect of loneliness on depression in the current

study. If this finding is replicated in future work, it would be interesting to test the theory presented earlier regarding the potentially adaptive effects of negative religious coping. To this end, constructs such as just world beliefs (Lerner, 1978) may be examined as mediators of this moderation effect. In addition, given that this finding was specific to depressive symptoms, it may be relevant to further research with nongambling populations as well.

Methodological recommendations. The current section offers research recommendations pertaining to methodological and design issues.

Recommendations for coping research.

Moderation models of stress and coping. The current investigation identified few interaction effects. While the large number of nonsignificant interactions may have reflected the absence of moderation effects, the relatively strong relationships between stress and coping variables may also have played a role by limiting the range of the interaction terms. To address this potential issue in future work, researchers may consider selecting a stressor variable that is less correlated with the coping variables under investigation. For instance, it may be helpful to select a stressor that is unlikely to be affected by coping. Stressors due to external causes, rather than to characteristics of the individual, are best suited to this purpose (e.g., death of a family member, job loss due to mass layoffs). Another option may be to use longitudinal methods that assess stress prior to the introduction of a randomized coping intervention (e.g., see Baker & Berenbaum, 2007). An additional alternative may be to employ larger samples to increase power to detect an interaction effect.

Mediation models of stress and coping. To the extent that a given coping variable influences outcomes through its impact on stress, the adaptive or maladaptive effects of this strategy will not be apparent in the context of conventional mediation or moderation models. In some cases, researchers may consider using an alternative model that posits stress as a mediator of the effect of coping on outcomes (e.g., see Holahan, Moos, Holahan, Brennan, & Schutte, 2005). Such a model would be appropriate for coping variables that are specifically theorized to influence outcomes by affecting the stressor.

Measurement of contextual coping strategies. Given the low response rate for the open-ended questions relating to experiences of loneliness and job stress, an alternative strategy may be employed in future work to enhance the response rates for such questions. Specifically, rather than eliciting written responses from participants, future studies could use Likert-type scales to assess the circumstances and emotional responses associated with the event. Although this may be less effective in activating memories of the event, it would likely increase the number of responses and thus reduce the chances of systematic bias across participants in the activation of these memories.

Coping and problem gambling. Although the current study sought to address many methodological and design issues specific to previous research on coping and problem gambling, several issues remain to be addressed in future work. Most of these are discussed above, such as the need for longitudinal and experimental designs and the need for more valid and context-specific coping measures. An additional suggestion may be to recruit more diverse samples of gamblers. Older populations and individuals of more varied ethnic backgrounds and education levels need to be represented in future work. Moreover, given that the current sample was recruited from the general population

and exhibited a wide range of gambling pathology, further work is needed to determine whether these findings are applicable to specific subgroups of gamblers, including treatment-seeking problem gamblers (Jeyakumar, 2005).

Finally, given the use of a Judeo-Christian measure of religious coping and the predominance of Christians in the present sample, the application of the current findings for religious coping outside of this demographic is circumscribed. At present, few measures exist to assess religious coping variables in other religious demographics. As more instruments are developed, researchers will be better able to investigate the relationships between religious coping and problem gambling among individuals of diverse faiths.

Recommendations for online research with problem gamblers.

Online recruitment. Recruiting gamblers over the internet offered two important advantages. The first of these was the speed of recruitment: once the telephone interview had been eliminated from the protocol, online advertisements proved to facilitate quick and efficient recruitment of frequent gamblers. Of note, the speed of recruitment varied depending on ad location. Classified advertisements (i.e., on Kjiji and Craigslist) offered the most efficient and cost-effective recruitment method, garnering 28 completed surveys in four hours. Facebook advertisements were also relatively efficient and cost-effective, resulting in 170 surveys in six days. A second benefit of online recruitment was the range of problem gambling severity reported by the participants. The full spectrum of gambling pathology was represented in the current sample, from non-problem gamblers to severe problem gamblers. Again, ad placement was an important consideration in this regard. For instance, participants responding to the classified advertisements reported relatively

high levels of problem gambling, whereas those recruited through Facebook reported relatively low levels of gambling pathology. Thus, advertising on multiple websites may increase the chances of obtaining a sample with a wide range of problem gambling severity.

Online data collection. Online data collection offered some advantages. The most significant benefit was the facilitation of online recruitment though immediate access to the survey. Immediate access may have been particularly salient to recruiting problem gamblers, given the high levels of impulsivity in this population (Blaszczynski et al., 1997). Other advantages of online data collection included speed and efficiency of survey administration and, possibly, reduced social desirability bias due to anonymity (see Wood & Griffiths, 2007).

Online data collection also had significant drawbacks. For instance, although the monetary compensation may have speeded recruitment, it also provided an incentive for fraudulent submission of email addresses to obtain the compensation. Indeed, the classified advertisements resulted in the submission of 34 legitimate email addresses along with 144 fraudulent ones.[13] This problem, which was speculated to have been caused by an internet bot (an automated program designed to enter fraudulent email addresses), was subsequently averted by placing the survey on a secure server. As an added security measure to deter participants from "clicking through" the survey repeatedly to obtain multiple gift certificates, each IP address was only allowed to access the survey once every 24 hours. Future researchers offering compensation for online studies may wish to consider such preventative measures.

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[13] Fraudulent addresses were subsequently identified using log files from the online server at the University of Windsor.

Online version of the Gambling Timeline Followback (G-TLFB). Finally, the current research project is the first to support the utility of an online version of the G-TLFB (Weinstock et al., 2004). Most previous studies have administered the G-TLFB in person, using a paper calendar as a shared reference point while the examiner interviews the participant. The current study was the first to adapt this instrument for online use. Although the current data do not permit a formal validation of the measure, the moderately strong correlation with problem gambling symptoms and the fact that most (94%) participants completed the entire 30-day calendar suggests that it has practical utility as an online measure. Further research is necessary to provide a formal validation of this format.

Clinical Implications of the Present Study

The purpose of the present investigation was to explore specific stress-coping processes with the objective of improving the clinical applicability of future research on coping and problem gambling. As these are preliminary findings, it would be premature to recommend clinical interventions solely based on the results of the current study. However, several practical suggestions could be made if these findings were supported in future work, particularly if additional evidence were found to support causal links between variables. For instance, if future longitudinal studies support the causal inference that loneliness and work-related stressors contribute to pathological outcomes among problem gamblers, these variables may be considered as potential targets for clinical intervention. Thus, inquiring about these particular stressors during the initial assessment and exploring these issues in the context of each patient's case formulation could be

beneficial. Moreover, regarding findings for loneliness in particular, treatment providers may consider prioritizing groupwork and the development of interpersonal skills.

Further, the robust associations between avoidance coping with outcomes across both stress scenarios suggest that the chronic use of avoidance is likely to be common among problem gamblers – a finding that is well-supported by existing research (e.g., Scannell et al., 2000; Shepherd & Dickerson, 2001). One potential avenue of future research discussed earlier (see Avoidance Coping Predicts Maladaptive Outcomes, p. 181) is to investigate ways in which common cognitive distortions of problem gamblers may contribute to avoidance coping across a number of life areas (e.g., illusions of control, selective memory; Joukhador, 2004). If such studies identify specific distortions that may contribute to avoidance coping among problem gamblers, this may inform clinical interventions directly, as treatment plans and psycho-educational materials may focus on these particular cognitive traps.

Additionally, future work may seek to confirm and elucidate the potentially adaptive effects of emotional approach coping identified in the current study. As discussed earlier (see p. 182), a possible research goal could be to isolate the mechanisms through which emotional approach coping and emotional expression affect outcomes. Depending on the results of such work, clinical recommendations could include enhancing self-esteem, addressing emotional overregulation, assertiveness training, or couples counseling to enhance emotional expression in intimate relationships.

Finally, if the positive associations between negative religious coping and outcomes are confirmed by future research, it may be beneficial for clinicians to include in their initial assessments questions regarding spiritual and religious beliefs (see

D'Souza, 2003). Because many negative religious coping items relate to an insecure relationship with God, gathering information about this particular issue may be an important task with actively religious Judeo-Christian clients. The implications of negative religious coping may then be assessed in the context of each client's case conceptualization. In cases where negative religious coping may be contributing to gambling problems or depressive symptomatology, involvement of appropriate faith-based counselling services may be considered.

Conclusion

The present study sought to explore a range of stress-coping processes among frequent gamblers and to provide suggestions for future research in this area. It incorporated improved methodology to examine stressors, nonreligious coping, and religious coping variables as predictors of pathological outcomes among frequent gamblers in the context of an established stress-coping model of addictive behaviour (Wills & Hirky, 1996; Wills & Shiffman, 1985). The present results offer some promising new avenues of investigation in the area of coping and problem gambling. In addition, they highlight some important methodological considerations for future research, particularly regarding the measurement of coping variables and the use of online methods to study gamblers and problem gamblers. It is hoped that the current findings will lead to enhanced clinical applicability of research in this field.

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Appendix A

Paper Advertisement for Treatment Centres (Phase 1)

Gambling Research Study: Earn a $15 Amazon Gift Certificate
Hi, my name is Phoenix Gillis, and I need your help. For my Ph.D. thesis, I am conducting a survey on gambling, stress, and coping. I am looking for **frequent gamblers** to take part in my survey. The survey takes **about 1 hour**, and it has two parts: a brief telephone interview, and an online survey.

If you participate, you will receive a **$15 Amazon Gift Certificate**.

To be eligible, participants must:

1) **Gamble once a month** or more (on average).
2) Be 18 years of age or older.
3) Be residents of the **U.S. or Canada**.
4) Have **worked at least 30 hours/week** in the last 6 months (on average).

If you are interested in participating, please visit uwindsor.ca/users/g/gillise/gamble/nsf/screening and fill out the screening questions. If you match the population I'm interested in studying, you will be directed to more information about the study and you will have the opportunity to sign up.

This study has been approved by the University of Windsor Research Ethics Board. Any additional questions regarding this study can be addressed to me (Phoenix Gillis) at gillise@uwindsor.ca. Thank you!

Appendix B

Online Consent Form (Phase 1)

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: Gambling, coping with life stressors, and psychological health outcomes.

You are invited to participate in a research study conducted by Phoenix Gillis, M.A., and Ben C. H. Kuo, Ph.D., from the Department of Psychology at the University of Windsor in Windsor, Ontario. This study is being conducted as Phoenix Gillis's dissertation project, and you will receive a **$15 online gift certificate** for Amazon for participating.

If you have any questions or concerns about the research, please feel to contact Phoenix Gillis, M.A. (e-mail: gillise@uwindsor.ca), or Professor Ben C. H. Kuo, Ph.D., Certified Psychologist, Department of Psychology, University of Windsor, 401 Sunset Ave., CHS 261-1, Windsor ON, N9B 3P4; Phone: (519) 253-3000, ext. 2238 (e-mail: benkuo@uwindsor.ca).

PURPOSE OF THE STUDY

While many people are able to gamble without significant negative consequences, others find it difficult to control their gambling and may develop serious difficulties as a result. Research shows that how people cope with the stress in their lives may influence the likelihood that gambling becomes problematic. It is therefore important for researchers and mental health professionals to understand what coping patterns contribute to different psychological health outcomes in gamblers. The purpose of this study is to look at the relationships between life stressors, coping strategies, and mental health outcomes among people who gamble frequently.

PROCEDURES

If you volunteer to participate in this study, you will be asked to:

1. Complete an online form with your telephone number, first name, and time(s) when you would prefer to be called for a 20-minute interview.

2. Take part in this 20-minute **telephone interview**, during which you will be asked about your gambling activities in the last month. It will be helpful to have a calendar that you can write on during this interview.

3. Participate in an **online survey,** which will take about 45 minutes to complete.

POTENTIAL RISKS AND DISCOMFORTS

There are minimal risks anticipated with participating in the present study. However, should you experience any distress or discomfort as a result of taking part in the study, please follow these links. For a list of Canadian Mental Health Association offices, visit http://www.cmha.ca/bins/index.asp. For a list of National Mental Health Association offices, visit http://www.casp-acps.ca/crisiscentres.asp.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Your participation in this study will contribute to the critical scientific knowledge about stress and coping factors that influence the likelihood of developing gambling problems. In addition, you will receive an online gift certificate for participating.

COMPENSATION FOR PARTICIPATION

Participants will receive a **$15 online gift certificate** for either amazon.com or amazon.ca (depending on country of residence) for participating in the study. Gift certificates will be sent via email within a few days of completion of the online survey.

CONFIDENTIALITY

Any information that is obtained in connection with this study and your participation in this study will remain confidential. The data for the telephone survey will be kept in a locked cabinet in the principal investigator's office. Only the principal investigator will have access to this cabinet. The data for the online survey will be kept in a secure database; only the principal investigator and the web survey developer will have access to this database (only the principal investigator can link your study data to your telephone number/first name). Five years following the collection of data, information will be transcribed, verified, and destroyed. At that time, written materials will be shredded, and electronic files will be permanently deleted.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may
refuse to answer any questions you don't want to answer and still remain in the study. You may also withdraw at any time without consequences. Importantly, **you must complete the online survey within two weeks of the telephone interview**. After these two weeks, access to the survey will be closed. Therefore, if you decide to withdraw from the survey, to receive your gift certificate you must inform the principal investigator of your decision before these two weeks have passed. You may do this in two ways: a) by stating your intention to withdraw during the telephone interview, or b) by clicking on the withdraw button during the online survey.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

The results of this study will be available in August, 2011 at www.uwindsor.ca/reb (click on Study Results and scroll down to Participants/Visitors).

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research participant, please contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

You are encouraged to save/print a copy of this form for your records.

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Phoenix Gillis, M.A.	*August 22nd, 2010*
Signature of Investigator	Date

CONSENT OF RESEARCH PARTICIPANT

I understand the information provided for the study as described herein and I have had the opportunity to save/print a copy of this form for my records. **By clicking on "I consent to participate in this study"*** at the bottom of this page, I am consenting to participate in this study.

I consent to participate in this study

Appendix C

Online Screening Form (Phase 1)

Welcome to the University of Windsor gambling research study. This study is being conducted by Phoenix Gillis, M.A., as her dissertation project, and it is intended to gather information about a particular segment of the gambling population. Please answer the following questions to determine whether you are eligible to participate.

1. How old are you?
    a. Under 18
    b. 18-29
    c. 30-39
    d. 40-49
    e. 50-59
    f. 60+
2. What country do you live in?
    a. United States
    b. Canada
    c. Other
3. On average, how frequently do you engage in gambling activities?
    a. Every day
    b. A few times each week
    c. Once a week
    d. Once every two weeks
    e. Once a month
    f. Once every three months
    g. Once a year
4. On average, how many hours per week did you work at a place of employment in the last six months?
    a. 40+ hours
    b. 30-39 hours
    c. 20-29 hours
    d. Less than 20 hours
    e. I was not employed in the last six months

Note. To be eligible, participants were required to have endorsed one of the bolded response choices for each question.

Appendix D

Telephone protocol for Timeline Followback Interview for Gambling (G-TLFB) (Adapted from Sobell & Sobell, 1992; Weinstock et al., 2004)

"I would like to get an idea of what your gambling was like in the past 30 days, from ____ to ____. Having a calendar in front of you will be helpful to answer my questions. For example, do you have an appointment book? If not, any calendar that you can write on will be fine."

If the participant does not have access to a calendar, the interviewer will provide a website address containing an online fillable calendar for the participant to use during the G-TLFB. If the participant does not have access to a computer and internet connection, the interviewer will suggest that he or she make notes on a piece of paper during the administration.

"Let's begin. First, I'd like you to think about personal holidays and events such as birthdays or vacations that you could keep in mind when answering my questions. I'd also like you to think about paydays, if this applies to you. It might be helpful to make a note of all of these days – the holidays, events, and paydays - on the calendar."

The interviewer will wait until the participant indicates that this task has been completed.

"Also, if you have regular gambling patterns you can use these to help you recall your gambling. For example, you may have a daily or weekend/weekday pattern, such as gambling on your way home from work or another activity, or buying weekly lottery tickets. If you have any patterns like these, it would be helpful if you could make a note of these as well."

The interviewer will wait until the participant indicates that this task has been completed.

"Now as I said earlier, I'm going to ask you questions about your gambling in the last 30 days, from ____ to ____. I'm going to go through each day in this period, starting with yesterday and going back from there. I understand that you won't have perfect recall. That's okay."

"Let's start with yesterday. Did you gamble at all yesterday, [yesterday's date]? You can take a moment to think about this."

If the participant reports that he or she did NOT gamble on that day, the interviewer will proceed to the day before yesterday (see below).

If the participant reports that he or she did gamble on that day, the interviewer will ask two questions:

"How long would you say you spent gambling that day?"

"How much money did you lose or win on net that day?" (*The interviewer will establish whether the reported figure represents wins or losses.*)

The interviewer will encourage the participant to record the answers to both questions on the calendar or sheet of paper, and will go on to ask about the preceding day.

"Did you gamble at all the day before that, [date]? Again, you can take a moment to think about this."

The interviewer will proceed through each day in the previous month until gambling behaviours have been assessed for the entire 30-day period.

*The interviewer will then say: "*All right, so out of the last 30 days, then, you had ___ days when you gambled and ___ days when you did not gamble. Is that correct?"

If the participant reports that this is correct, the administration of the G-TLFB is complete.

If the participant reports that this is incorrect, the interviewer will ask the participant to indicate what he or she believes to be the correct number of days gambled. The interviewer will then ask the participant to review the information that he or she has been recording and to alter this information as appropriate.

General administration notes:

If the participant is unsure, the interviewer will encourage him or her to give a best estimate:

"Give it your best estimate. I realize it isn't easy to recall things with 100% accuracy. The goal is to get a sense of how frequently you gambled, how much time and money you spent gambling, and your patterns of gambling."

If the participant gives a range of possibilities as an answer (e.g., "I was at the casino for three or four hours"), select the midpoint of the range (e.g., 3.5 hours).

Appendix E

Online version of Timeline Followback Interview for Gambling (G-TLFB) (Adapted from Sobell et al., 1996; Weinstock et al., 2004)

You have reached the final page of the survey! You are almost done.

For this final part of the survey, I am interested in your gambling over the past 30 days, so between ___ and ___.* For each day that you gambled during this period, I would like to know three things:

1) Whether you **won** or **lost** any money gambling that day
2) How many **dollars** you won or lost on that day
3) How many **hours** you spent gambling on that day

Please provide this information for the days when you gambled. You may leave days when you did not gamble blank (these will be recorded as "0").

See Additional Tips for more tips on filling on out the calendar, and the Sample Calendar for an example.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		02/07/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/08/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/09/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/10/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/11/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:
02/12/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/13/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/14/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/15/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/16/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/17/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/18/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:
02/19/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/20/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/21/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/22/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/23/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/24/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:	02/25/2012 Dollars lost/won: n/a $ 0 Hours spent gambling:

02/26/2012	02/27/2012	02/28/2012	02/29/2012	03/01/2012	03/02/2012	03/03/2012
Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:
03/04/2012	**03/05/2012**	**03/06/2012**	**03/07/2012**	Today: **03/08/2012**		
Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:	Dollars lost/won: n/a $ 0 Hours spent gambling:			

Notes: Under "*Dollars lost/won*" there were two fields: (a) a drop down menu with options of "n/a," "lost," and "won;" and (b) a text box that defaulted at 0. Participants were not permitted to proceed to the next page if their responses on a given day did not match (e.g., if a participant indicated that she had won or lost money, but the "*Hours spent gambling*" box was empty). The table was programmed to reflect the thirty day period immediately preceding the current date.

*The instructions were programmed to reflect the appropriate 30 day period.

Tips on Completing the Calendar Form

1. You are not expected to have a perfect memory. Please just complete the calendar as best you can. If you can't remember something, just give it your best guess!

2. Appointment books can be very helpful in helping you remember what you did on certain days, which can give you clues about when you gambled.

3. While filling out the calendar, keep in mind key dates (e.g., paydays, birthdays) and patterns of gambling (e.g., weekly trips to the casino).

4. If you're not sure about something, pick the mid-point. For example, if you can't remember whether you gambled for 5 hours or 10 hours, write 7.5 hours.

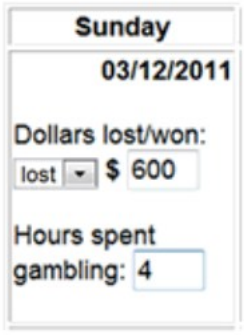
5. It might be easiest to start with the most recent gambling session, and go back from there.

6. For lottery tickets, please record the time you spent purchasing the tickets (or buying into the lottery pool). Any lottery winnings can be recorded on the same day you bought the winning ticket (or bought into the pool).

7. See the Sample Calendar for an example.

Sample Calendar

Let's say that on Sunday, March 12, you lost $600 gambling and gambled for a total of 4 hours. You would select "lost" from the drop-down menu, write "600" in the Dollars lost/won box, and write "4" in the Hours spent gambling box.



Appendix F

Online Consent form (Phase 2, General Population)

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: Gambling, coping with life stressors, and psychological health outcomes.

You are invited to participate in a research study conducted by Phoenix Gillis, M.A., and Ben C. H. Kuo, Ph.D., from the Department of Psychology at the University of Windsor in Windsor, Ontario. This study is being conducted as Phoenix Gillis's dissertation project.

If you have any questions or concerns about the research, please feel to contact Phoenix Gillis, M.A. (e-mail: gillise@uwindsor.ca), or Professor Ben C. H. Kuo, Ph.D., Certified Psychologist, Department of Psychology, University of Windsor, 401 Sunset Ave., CHS 261-1, Windsor ON, N9B 3P4; Phone: (519) 253-3000, ext. 2238 (e-mail: benkuo@uwindsor.ca).

PURPOSE OF THE STUDY

The purpose of this study is to look at the relationships between life stressors, coping strategies, and mental health outcomes among people who gamble.

PROCEDURES

You will first be asked to answer a few questions to determine whether you match the population being surveyed. If you match this population, you will be invited to complete a 45-60 minute online survey.

POTENTIAL RISKS AND DISCOMFORTS

There are minimal risks anticipated. If you do experience any distress or discomfort as a result of the study, please follow these links:

For a list of Canadian Mental Health Association offices, visit http://www.cmha.ca/bins/index.asp. For a list of National Mental Health Association offices, visit http://www.casp-acps.ca/crisiscentres.asp.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Your participation in this study will contribute to scientific knowledge about how stress and coping influence the likelihood of developing gambling problems.

COMPENSATION FOR PARTICIPATION

Participants will each receive a $15 gift certificate for Amazon for participating. Gift certificates will be sent via email following completion of the online survey.

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential. Email addresses will not be linked to survey responses in any way, and will be used solely for the purpose of delivering the gift certificate. The survey data will be kept in a secure database; only the principal investigator and the web survey developer will have access to this database. Five years following the collection of data, information will be transcribed, verified, and destroyed. At that time, electronic files will be permanently deleted.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may refuse to answer any questions you don't want to answer and still remain in the study. You may also withdraw at any time without consequences. Importantly, **you must complete the survey within two weeks**. After these two weeks, access to the survey will be closed. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

The results of this study will be available in December, 2011 at www.uwindsor.ca/reb (click on Study Results and scroll down to Participants/Visitors).

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, please contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

You are encouraged to save/print a copy of this form for your records.

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Phoenix Gillis, M.A. *August 22nd, 2010*

Signature of Investigator Date

Appendix G

Online Screening Form (Phase 2)

To begin, please answer the following questions to ensure that you match the survey population:

1. How old are you?
    a. Under 18
    b. 18-29
    c. 30-39
    d. 40-49
    e. 50-59
    f. 60+
2. What country do you live in?
    a. United States
    b. Canada
    c. Other
3. On average, how frequently do you engage in gambling activities?
    a. Every day
    b. A few times each week
    c. Once a week
    d. Once every two weeks
    e. Once a month
    f. Once every three months
    g. Once a year
4. Which of the following best describes your employment status in the last three months?
    a. I was employed full-time
    b. I was employed part-time
    c. I was not employed in the last three months
    d. I was employed for part of the last three months (e.g., worked part-time for the last two months, but previously unemployed)

Note. To be eligible, participants were required to have endorsed one of the bolded response choices for each question.

Appendix H

Online Survey (Phase 1 and 2)[14]

Background Questionnaire (Adapted from Kuo et al., 2010)

INSTRUCTIONS: The following information will be used to describe characteristics of participants who respond to this survey.

1. Your age: _____

2. Gender: _____

3. How did you hear about this study? _____

4. Which of the following best describes your highest level of education?
   ____ a. Elementary School Education
   ____ b. High School Diploma
   ____ e. University Bachelor's Degree
   ____ f. Post-Graduate Degree (e.g., M.A., M.Sc., Ph.D, M.D.)
   ____ i. Other. Please specify _____

5. Are you currently a university/college student?
   ____ a. Yes
   ____ b. No

6. What is your current employment status?
   ____ a. Full-time employment
   ____ b. Part-time employment (one job)
   ____ c. Part-time employment (two or more jobs)
   ____ d. Unemployed
   ____ e. Other. Please specify _____

7. Which of the following best describes your type of employment over the past six months?
   ____ a. Management, Business, and Financial
   ____ b. Computer, Engineering, and Science
   ____ c. Education, Legal, Community Service, Arts, and Media
   ____ d. Healthcare Practitioners and Technical
   ____ e. Service (e.g., healthcare support, protective service, food service, maintenance)
   ____ f. Sales and Related
   ____ g. Office and Administrative Support
   ____ h. Farming, Fishing, and Forestry

[14] In Phase 2, the G-TLFB (Weinstock et al., 2004) was also included as part of the online questionnaire (see Appendix E).

____ i. Installation, Maintenance, and Repair
____ j. Production
____ k. Transportation and Material Moving
____ l. Military
____ m. Other

8. How long have you been employed at your present job?
____ a. Less than a year
____ b. 1-5 years
____ c. 6-10 years
____ d. 11-20 years
____ e. 21+ years

9. Over the last six months, how many hours per week did you work (on average)?
____ a. 0-10 hours
____ b. 11-20 hours
____ c. 21-30 hours
____ d. 31-40 hours
____ e. 41-50 hours
____ f. 50+ hours

10. Which of the following best describes your current relationship status?
____ a. Married
____ b. Common-Law/Cohabiting
____ c. In a long-term relationship
____ d. Divorced
____ e. Single
____ f. Widowed
____ g. Other. Please specify _____

11. What is your ethnic/cultural background (check all that apply)?
____ a. Caucasian/European
____ b. East Asian (e.g., Chinese, Japanese, Korean)
____ c. South Asian (e.g., Indian, Pakistani, Sri Lankan)
____ d. Black/African
____ e. Hispanic
____ f. Middle Eastern
____ g. Native/First Nation
____ h. Other. Please specify _____

12. Of what country are you currently a resident? Canada __ U.S. __

13. What country were you born in? _____

14. Which of the following best describes your religious preference? _____

____ a. Christianity|1
____ a. Nonreligious/Secular|2
____ a. Judaism|3
____ a. Islam|4
____ a. Buddhism|5
____ a. Agnostic|6
____ a. Atheist|7
____ a. Hinduism|8
____ a. Unitarian Universalist|9
____ a. Wiccan/Pagan/Druid|10
____ a. Spiritualist|11
____ a. No preference|12
____ a. Unsure|13
____ a. Prefer not to answer|14
____ a. Other.|15

15. How strong would you say your religious or spiritual faith is?*

(1) Not Very Strong	(2) A Little Strong	(3) Moderately Strong	(4) Very Strong	(5) Not Appicable
☐	☐	☐	☐	☐

16. What is your estimated monthly net income (after taxes and deductions)?
____ a. $20,000 - $40,000
____ b. $40,000 - $60,000
____ c. $60,000 - $80,000
____ d. $80,000 - $100,000
____ e. $100,000
____ f. Prefer not to answer.

17. Which of the following gambling activities have you engaged in (check all that apply)?
____ a. Slot Machines
____ b. Casino Tables (e.g. blackjack)
____ c. Internet Gaming
____ d. Lottery Tickets
____ e. Bingo
____ f. Horse Racing
____ g. Dog Racing
____ h. Sports Betting
____ i. Cards (e.g. Poker)
____ j. Other. Please specify _____

18. Which of the gambling activities from the list above have you lost the most money at?
____ a. Slot Machines

____ b. Casino Tables (e.g. blackjack)
____ c. Internet Gaming
____ d. Lottery Tickets
____ e. Bingo
____ f. Horse Racing
____ g. Dog Racing
____ h. Sports Betting
____ i. Cards (e.g. Poker)
____ j. Other. Please specify _____

19. In the past 6 months, approximately how often would you say you engaged in gambling activities?
____ a. I did not engage in gambling activities in the past 6 months
____ b. About once a month
____ c. About twice a month
____ d. About once a week
____ e. About twice a week
____ f. About once every two days
____ g. About once every day
____ h. More than once every day

20. Have you ever been diagnosed or are aware of having any psychiatric or psychological drug/alcohol use problems?
____ a. Yes
____ b. No
____ c. Unsure
____ d. Prefer not to answer

21. If yes, please describe the conditions: _____

22. In the last five years, have you received psychotherapy/counseling for this or any other problem/condition?
____ a. Yes
____ b. No
____ c. Unsure
____ d. Prefer not to answer

*This item was used by the NIH Cancer Genetics Studies Consortium (Schwartz et al., 2000).

R-UCLA Loneliness Scale (R-UCLA-LS Version 3; Russell, 1996)

Instructions: The following statements describe how people sometimes feel. For each statement, please indicate how often you feel the way described by writing a number in the space provided. Here is an example:

How often do you feel happy?

If you never felt happy, you would respond "never"; if you always feel happy, you would respond "always."

NEVER	RARELY	SOMETIMES	ALWAYS
1	2	3	4

*1.	How often do you feel that you are "in tune" with the people around you?	_____
2.	How often do you feel that you lack companionship?	_____
3.	How often do you feel that there is no one you can turn to?	_____
4.	How often do you feel alone?	_____
*5.	How often do you feel part of a group of friends?	_____
*6.	How often do you feel that you have a lot in common with the people around you?	_____
7.	How often do you feel that you are no longer close to anyone?	_____
8.	How often do you feel that your interests and ideas are not shared by those around you?	_____
*9.	How often do you feel outgoing and friendly?	_____
*10.	How often do you feel close to people?	_____
11.	How often do you feel left out?	_____
12.	How often do you feel that your relationships with others are not meaningful?	_____
13.	How often do you feel that no one really knows you well?	_____
14.	How often do you feel isolated from others?	_____
*15.	How often do you feel you can find companionship when you want it?	_____
*16.	How often do you feel that there are people who really understand you?	_____
17.	How often do you feel shy?	_____
18.	How often do you feel that people are around you but not with you?	_____
*19.	How often do you feel that there are people you can talk to?	_____
*20.	How often do you feel that there are people you can turn to?	_____

*Items are reverse keyed.

Job Stress Survey (JSS; Spielberger & Vagg, 1999)*

Instructions and selected sample items from the JSS:

Part A. Instructions: For job-related events judged to produce approximately the same amount of stress as the **ASSIGMENT OF DISAGREEABLE DUTIES**, circle the number "5." For those events that you feel are more stressful than the standard, circle a number proportionately larger than "5." If you feel an event is less stressful than the standard, circle a number proportionately lower than "5."

		Amount of Stress								
	STRESSFUL JOB-RELATED EVENTS	**Low**			**Moderate**					**High**
1A.	**ASSIGMENT OF DISAGREEABLE DUTIES**	1	2	3	4	5	6	7	8	9
4A.	Assignment of new or unfamiliar duties	1	2	3	4	5	6	7	8	9
6A.	Inadequate support by supervisor	1	2	3	4	5	6	7	8	9
19A.	Inadequate salary	1	2	3	4	5	6	7	8	9

Part B. Instructions: For each of the job-related events listed, please indicate the approximate number of days during the past 6 months on which you have personally experienced this event. Circle "0" if the event did not occur; circle the number "9+" for each event that you experienced personally on 9 or more days during the past 6 months.

		Number of Days on Which the Event Occurred During the Past 6 Months								
	STRESSFUL JOB-RELATED EVENTS									
1A.	**ASSIGMENT OF DISAGREEABLE DUTIES**	1	2	3	4	5	6	7	8	9+
4B.	Assignment of new or unfamiliar duties	1	2	3	4	5	6	7	8	9+
6B.	Inadequate support by supervisor	1	2	3	4	5	6	7	8	9+
19B.	Inadequate salary	1	2	3	4	5	6	7	8	9+

Coping Orientations to Problems Experienced (COPE; Carver et al., 1989) and Emotional Approach Coping Scale (EACS; Austenfeld & Stanton, 2004)*

I didn't do this at all	I did this a little bit	I did this a medium amount	I did this a lot
1	2	3	4

Problem-Focused Coping (COPE subscales: Active Coping, Planning)

1. I took additional action to try to get rid of the problem (Active Coping). _____
2. I concentrated my efforts on doing something about it (Active Coping). _____
3. I did what had to be done, one step at a time (Active Coping). _____
4. I took direct action to get around the problem (Active Coping). _____
5. I tried to come up with a strategy about what to do (Planning). _____
6. I made a plan of action (Planning). _____
7. I thought hard about what steps to take (Planning). _____
8. I thought about how I might best handle the problem (Planning). _____

Avoidance Coping (COPE subscales: Denial, Mental Disengagement)

1. I refused to believe that it had happened (Denial). _____
2. I pretended that it hadn't really happened (Denial). _____
3. I acted as though it hadn't even happened (Denial). _____
4. I said to myself "this isn't real" (Denial). _____
5. I turned to work or other substitute activities to take my mind off things (Mental Disengagement). _____
6. I went to movies or watched TV, to think about it less (Mental Disengagement). _____
7. I daydreamed about things other than this (Mental Disengagement). _____

8. I slept more than usual (Mental Disengagement). _____

Emotional Approach Coping (EACS subscales: Emotional Processing, Emotional Expression)

1. I took time to figure out what I was really feeling (Emotional Processing).
2. I delved into my feelings to get a thorough understanding of them (Emotional Processing).
3. I realized that my feelings were valid and important (Emotional Processing).
4. I acknowledged my emotions (Emotional Processing).
5. I worked on understanding my feelings (Emotional Processing).
6. I explored my emotions (Emotional Processing).
7. I found a way to understand my emotions better (Emotional Processing).
8. I looked closely at the reasons for my feelings (Emotional Processing).

9. I let my feelings come out freely (Emotional Expression).
10. I took time to express my emotions (Emotional Expression).
11. I allowed myself to express my emotions (Emotional Expression).
12. I felt free to express my emotions (Emotional Expression).
13. I expressed the feelings I was having (Emotional Expression).
14. I found a way to express my emotions (Emotional Expression).
15. I let my feelings out (Emotional Expression).
16. I got my feelings out in the open (Emotional Expression).

* COPE/EACS subscales are indicated in parentheses. Items measuring problem-focused, avoidance, and emotional approach coping were combined to form a single measure, as suggested by the EACS test author (A. Stanton, personal communication, July 22nd, 2010).

Brief RCOPE (Pargament et al., 1998)*

Not at all	Somewhat	Quite a bit	A great deal
1	2	3	4

1. Looked for a stronger connection with God (Positive Religious Coping). _____
2. Sought God's love and care (Positive Religious Coping). _____
3. Sought help from God in letting go of my anger (Positive Religious Coping). _____
4. Tried to put my plans into action together with God (Positive Religious Coping). _____
5. Tried to see how God might be trying to strengthen me in this situation (Positive Religious Coping). _____
6. Asked forgiveness for my sins (Positive Religious Coping). _____
7. Focused on religion to stop worrying about my problems (Positive Religious Coping). _____

8. Wondered whether God had abandoned me (Negative Religious Coping). _____
9. Felt punished by God for my lack of devotion (Negative Religious Coping). _____
10. Wondered what I did for God to punish me (Negative Religious Coping). _____
11. Questioned God's love for me (Negative Religious Coping). _____
12. Wondered whether my church had abandoned me (Negative Religious Coping). _____
13. Decided the devil made this happen (Negative Religious Coping). _____
14. Questioned the power of God (Negative Religious Coping). _____

* RCOPE subscales are indicated in parentheses.

Problem Gambling Severity Index (PGSI; Wynne, 2003)

Thinking about the past 12 months, how often …	Never	Sometimes	Most of the Time	Almost Always
1. Have you bet more than you could really afford to lose?	☐	☐	☐	☐
2. Have you needed to gamble with larger amounts of money to get the same feeling of excitement?	☐	☐	☐	☐
3. Have you gone back another day to try to win back the money you lost?	☐	☐	☐	☐
4. Have you borrowed money or sold anything to get money to gamble?	☐	☐	☐	☐
5. Have you felt that you might have a problem with gambling?	☐	☐	☐	☐
6. Have people criticized your betting or told you that you had a gambling problem regardless of whether or not you thought it was true?	☐	☐	☐	☐
7. Have you felt guilty about the way you gamble, or what happens when you gamble?	☐	☐	☐	☐
8. Has your gambling caused you any health problems, including stress or anxiety?	☐	☐	☐	☐
9. Has your gambling caused any financial problems for you or your household?	☐	☐	☐	☐

Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996)

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness 0 I do not feel sad. 1 I feel sad much of the time. 2 I am sad all the time. 3 I am so sad or unhappy that I can't stand it.	**2. Pessimism** 0 I am not discouraged about my future. 1 I feel more discouraged about my future than I used to be. 2 I do not expect things to work out for me. 3 I feel my future is hopeless and will only get worse.
3. Past Failure 0 I do not feel like a failure. 1 I have failed more than I should have. 2 As I look back, I see a lot of failures. 3 I feel I am a total failure as a person.	**4. Loss of Pleasure** 0 I get as much pleasure as I ever did from the things I enjoy. 1 I don't enjoy things as much as I used to. 2 I get very little pleasure from the things I used to enjoy. 3 I can't get any pleasure from the things I used to enjoy
5. Guilty Feelings 0 I don't feel particularly guilty. 1 I feel guilty over many things I have done or should have done. 2 I feel quite guilty most of the time. 3 I feel guilty all of the time.	**6. Punishment Feelings** 0 I don't feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished.
7. Self-Dislike 0 I feel the same about myself as ever. 1 I have lost confidence in myself. 2 I am disappointed in myself. 3 I dislike myself.	**8. Self-Criticalness** 0 I don't criticize or blame myself more than usual. 1 I am more critical of myself than I used to be. 2 I criticize myself for all my faults. 3 I blame myself for everything bad that happens.
9. Suicidal Thought or Wishes 0 I don't have any thoughts of killing myself. 1 I have thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance.	**10. Crying** 0 I don't cry anymore than I used to. 1 I cry more than I used to. 2 I cry over every little thing. 3 I feel like crying, but I can't.

11. Agitation 0 I am no more restless or wound up than usual. 1 I feel more restless or wound up than usual. 2 I am so restless or agitated that it's hard to stay still. 3 I am so restless or agitated that I have to keep moving or doing something.	**12. Loss of Interest** 0 I have not lost interest in other people or activities. 1 I am less interested in other people or things than before. 2 I have lost most of my interest in other people or things. 3 It's hard to get interested in anything.
13. Indecisiveness 0 I make decisions about as well as ever. 1 I find it more difficult to make decisions than usual. 2 I have much greater difficulty in making decisions than I used to. 3 I have trouble making any decisions.	**14. Worthlessness** 0 I do not feel I am worthless. 1 I don't consider myself as worthwhile and useful as I used to. 2 I feel more worthless as compared to other people. 3 I feel utterly worthless.
15. Loss of Energy 0 I have as much energy as ever. 1 I have less energy than I used to have. 2 I don't have enough energy to do very much. 3 I don't have enough energy to do anything.	**16. Changes in Sleeping Pattern** 0 I have not experienced any change in my sleeping pattern. 1a I sleep somewhat more than usual. 1b I sleep somewhat less than usual. 2a I sleep a lot more than usual. 2b I sleep a lot less than usual. 3a I sleep most of the day. 3b I wake up 1-2 hours early and can't get back to sleep.
17. Irritability 0 I am no more irritable than usual. 1 I am more irritable than usual. 2 I am much more irritable than usual. 3 I am irritable all the time.	**18. Changes in Appetite** 0 I have not experienced any change in my appetite. 1a My appetite is somewhat less than usual. 1b My appetite is somewhat greater than usual. 2a My appetite is much less than before. 2b My appetite is much greater than before. 3a I have no appetite at all. 3b I crave food all the time

19. Concentration Difficulty 0 I can concentrate as well as ever. 1 I can't concentrate as well as usual. 2 It's hard to keep my mind on anything for very long. 3 I find I can't concentrate on anything.	**20. Tiredness or Fatigue** 0 I am no more tired or fatigued than usual. 1 I get tired or fatigued more easily than usual. 2 I am too tired or fatigued to do a lot of the things I used to do. 3 I am too tired or fatigued to do most of the things I used to do.
21. Loss of Interest in Sex 0 I have not noticed any recent change in my interest in sex. 1 I am less interested in sex than I used to be. 2 I am much less interested in sex now. 3 I have lost interest in sex completely.	

Appendix I

Consent Form (Phase 2, Participant Pool Version)

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: Gambling, coping with life stressors, and psychological health outcomes.

You are invited to participate in a research study conducted by Phoenix Gillis, M.A., and Ben C. H. Kuo, Ph.D., from the Department of Psychology at the University of Windsor in Windsor, Ontario. This study is being conducted as Phoenix Gillis's dissertation project.

If you have any questions or concerns about the research, please feel to contact Phoenix Gillis, M.A. (e-mail: gillise@uwindsor.ca), or Professor Ben C. H. Kuo, Ph.D., Certified Psychologist, Department of Psychology, University of Windsor, 401 Sunset Ave., CHS 261-1, Windsor ON, N9B 3P4; Phone: (519) 253-3000, ext. 2238 (e-mail: benkuo@uwindsor.ca).

PURPOSE OF THE STUDY

The purpose of this study is to look at the relationships between life stressors, coping strategies, and mental health outcomes among people who gamble.

PROCEDURES

You will first be asked to answer a few questions to determine whether you match the population being surveyed. If you match this population, you will be invited to complete a 45-60 minute online survey.

POTENTIAL RISKS AND DISCOMFORTS

There are minimal risks anticipated. If you do experience any distress or discomfort as a result of the study, please follow these links:

For a list of Canadian Mental Health Association offices, visit http://www.cmha.ca/bins/index.asp. For a list of National Mental Health Association offices, visit http://www.casp-acps.ca/crisiscentres.asp.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Your participation in this study will contribute to scientific knowledge about how stress and coping influence the likelihood of developing gambling problems.

COMPENSATION FOR PARTICIPATION

Participant pool participants will receive .5 bonus points for 30 minutes of participation towards the psychology participant pool, if registered in the pool and enrolled in one or more eligible courses.

CONFIDENTIALITY

To receive course credit, you will be required to enter your email address, which will be linked to your responses on the survey. Your responses are therefore not anonymous. However, all information that is obtained in connection with this study and that can be identified with you will remain confidential. The survey data will be kept in a secure database; only the principal investigator and the web survey developer will have access to this database. Five years following the collection of data, information will be transcribed, verified, and destroyed. At that time, electronic files will be permanently deleted.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may refuse to answer any questions you don't want to answer and still remain in the study. You may also withdraw at any time without consequences. If you wish to withdraw before the end of the survey, you must click on the "Withdraw Data" button In order to enter your email; otherwise, you will not receive credit. Participation points will then be allocated depending on how much of the survey is completed. Importantly, **you must complete the survey by May 31st, 2011, at 11:59 pm**. After that time, access to the survey will be closed. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

The results of this study will be available in December, 2011 at www.uwindsor.ca/reb (click on Study Results and scroll down to Participants/Visitors).

SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, please contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

You are encouraged to save/print a copy of this form for your records.

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Phoenix Gillis, M.A.	*August 22nd, 2010*
Signature of Investigator	Date

Appendix J

License Agreement for Job Stress Survey

LICENSE AGREEMENT

THIS AGREEMENT, made this August 24, 2010, by and between Psychological Assessment Resources, Inc., a Florida Corporation, with its principal offices located at 16204 North Florida Avenue, Lutz, Florida 33549, hereinafter referred to as PAR, and Phoenix Gillis, with his principal offices located at the University of Windsor, 401 Sunset Avenue, 173-2 Chrysler Hall South, Windsor, ON N9B 3P4, Canada, hereinafter referred to as Licensee.

1) RECITALS

PAR has developed and holds all copyrights and distribution rights to certain psychological tests and related materials as listed in Schedule A, hereinafter called "Test". The Test consists of PAR's items, scoring keys, scales, profiles, standard-score conversion tables, norms tables, interpretive information, and related materials created, prepared, devised, and combined by PAR for the administration, scoring, reporting, and analysis of the Test, and includes the words, symbols, numbers, and letters used to represent the Test. Licensee desires to develop automated procedures for the secure and encrypted administration of the Test through Licensee's secure internet assessment website. The access to Licensee's website will be by invitation only in connection with Licensee's research study titled, *Problem Gambling as a Response to Social and Occupational Stressors: Testing a Moderation Model of Stress and Coping* and to subjects for this research purpose only (the "Limited Purpose(s)"). Unless permitted to do so by a separate license agreement, Licensee only has the right to use the Test for the Limited Purpose described above.

In consideration of the mutual covenants and promises expressed herein and other good and valuable considerations, it is agreed as follows:

2) LICENSE

PAR hereby grants to Licensee, subject to the terms of this Agreement, a non-transferable, non-exclusive license to place the Test on Licensee's Website for the Limited Purpose described in Section 1 above.

Licensee agrees to hold secure and treat as proprietary all information transferred to it from PAR. Licensee shall carefully control the use of the Test for the Limited Purpose described in this Agreement. Licensee's use of the Test will be under the supervision or in consultation with a qualified psychologist or other qualified individual and consistent with the then current edition of the Standards for Educational and Psychological Testing published by the American Psychological Association.

3) TERMS AND TERMINATION

The initial term of this Agreement shall extend from September 15, 2010 through May 31, 2011, and may be extended only by mutual agreement of the parties. Not withstanding any other provision of this Agreement, this Agreement may be terminated if any of the following events occur:

(a) Termination is mutually agreed to by the parties.

(b) Licensee defaults in the performance of any of its duties hereunder.

On the effective date of expiration or termination of this Agreement pursuant to subsections (a) and (b) above, all rights in this Agreement revert to PAR. Computer software programs written by or for Licensee remain the property of Licensee. Licensee warrants that upon expiration or termination of this Agreement under subsections (a) and (b) above, and except as set forth in any separate license agreement relating thereto, all portions of the Test licensed hereunder shall be removed from Licensee's Website. Failure to cease all uses of the Test shall constitute copyright infringement.

4) TERMINATION RIGHTS

In the event of termination pursuant to paragraph 3 above for any reason, PAR shall not be liable to Licensee for compensation, reimbursement or damages for any purpose, on account of any expenditures, investments, leases or commitments made or for any other reason whatsoever based upon or growing out of this Agreement.

5) CONDITIONS OF USE

PAR shall have the right to review, test, and approve that portion of Licensee's Website which includes the Test. Following PAR's approval of that portion of Licensee's Website containing the Test, the manner in which the Test appears on such Website shall not be changed in any material way without prior approval of PAR.

The computer programs developed by Licensee and used in any phase of administration and scoring of the Test shall be fully tested by Licensee and shall be encrypted and reasonably protected from access, intrusion and changes by persons who are not authorized agents of Licensee. In addition to the foregoing, Licensee shall exert all reasonable commercial efforts to prevent the Programs, and any accompanying code for the administration of the Test from being accessed, viewed or copied by others. Licensee warrants the accuracy of such scoring and reporting.

6) PROPRIETARY RIGHTS

PAR is the owner of all right, title and interest in the Test. Licensee shall acquire no right or interest in the Test, by virtue of this Agreement or by virtue of the use of the Test, except the right to use the Test in accordance with the provisions of this Agreement. Licensee shall not modify or revise the Test in any manner without written approval by PAR. All uses of the Test by Licensee shall inure to the benefit of PAR. Licensee agrees not to challenge or otherwise interfere with the validity of the Test or PAR's ownership of them.

7) ROYALTIES

Licensee agrees to pay PAR a royalty fee for use of the Test and copyrighted materials contained therein, at the rate of $1.37 per each test administration of the Test. Licensee will also provide PAR with an itemized accounting of all administrations of each Test administered by Licensee during the term of this agreement. Licensee shall pay to PAR Two Hundred and Seventy-Four Dollars ($274.00 USD) as an initial license fee ($1.37 per administration for 200 administrations), which is due and payable upon the signing of this License Agreement. Licensee shall also pay PAR $1.37 per each test administered for any tests administered above 200 by June 15, 2011.

8) ACCOUNTING

Licensee shall develop secure computerized accounting methods acceptable to PAR. Such accounting methods must include an electronic counting mechanism which will accurately record the number of administrations of each Test used. Licensee will keep accurate financial records of all transactions relating to the use of the Test, and PAR shall have the right to examine the software and records of Licensee pertaining to the use of the Test. Licensee will make such software and records accessible to PAR or its nominee during normal working hours upon not less than five (5) business days' prior written notice. Licensee shall retain such software and records for at least one year from the date this Agreement expires or the effective termination date.

The Website shall contain the following copyright notice:

> "Adapted and reproduced by special permission of the Publisher, Psychological Assessment Resources, Inc., 16204 North Florida Avenue, Lutz, Florida 33549, from the Job Stress Survey by Charles D. Spielberger, Ph.D. and Peter R. Vagg, Ph.D., Copyright 1992, 1999 by PAR, Inc. Further reproduction is prohibited without permission from PAR, Inc."

9) INDEMNITY

Licensee agrees to indemnify PAR and hold PAR harmless against any claim or demand or against any recovery in any suit (including taxes of any kind, reasonable attorney's fees, litigation costs, and other related expenses) that may be:

(a) brought by or against PAR, arising or alleged to have arisen out of the use of the Test by Licensee;

(b) sustained or incurred by PAR, arising or alleged to have arisen in any way from the breach of any of Licensee's obligations hereunder; or

(c) incurred by PAR in any litigation to enforce this Agreement, including litigation against Licensee.

10) ASSIGNMENT

Licensee shall not assign this Agreement or any license, power, privilege, right, or immunity, or delegate any duty, responsibility, or obligation hereunder, without the prior written consent of PAR. Any assignment by PAR of its rights in the Test shall be made subject to this Agreement.

11) GOVERNING LAW

This Agreement shall be construed according to the laws of the State of Florida of the United States of America. Venue for any legal action relative to this Agreement shall be in the appropriate state court in Hillsborough County, Florida, or in the United States District Court for the Middle District of Florida, Tampa division. Licensee agrees that, in any action relating to this Agreement, the Circuit Court in Hillsborough County, Florida or the United States District Court for the Middle District of Florida, Tampa Division, has personal jurisdiction over Licensee, and that Licensee waives any argument it may otherwise have against the exercise of those courts' personal jurisdiction over Licensee.

12) SEVERABILITY

If any provision of this Agreement shall, to any extent, be invalid and unenforceable such provision shall be deemed not to be part of this Agreement, and the parties agree to remain bound by all remaining provisions.

13) EQUITABLE RELIEF

Licensee acknowledges that irreparable damage would result from unauthorized use of the Test and further agrees that PAR would have no adequate remedy at law to redress such a breach. Therefore, Licensee agrees that, in the event of such a breach, specific performance and/or injunctive relief, without the necessity of a bond, shall be awarded by a Court of competent jurisdiction.

14) ENTIRE AGREEMENT OF THE PARTIES

This instrument embodies the whole Agreement of the parties. There are no promises, terms, conditions, or obligations for the Test licensed hereunder other than those contained herein; and this Agreement shall supersede all previous communications, representations, or agreements, either written or verbal, between the parties hereto, with the exception of any prior agreements that have not previously been terminated by written consent of both parties or by one party if the terms of the agreement allow. This Agreement may be changed only by an agreement in writing signed by both parties.

15) NOTICES AND MODIFICATIONS

Any notice required or permitted to be given under this Agreement shall be sufficient if in writing and if sent by certified or registered mail postage prepaid to the addresses first herein above written or to such addresses as either party may from time to time amend in writing. No letter, telegram, or communication passing between the parties hereto covering any matter during this contract, or periods thereafter, shall be deemed a part of this Agreement unless it is distinctly stated in such letter, telegram, or communication that it is to constitute a part of this Agreement and is to be attached as a right to this Agreement and is signed by both parties hereto.

16) SUCCESSORS AND ASSIGNS

Subject to the limitations on assignments as provided in Section 13, this Agreement shall be binding on the successors and assigns of the parties hereto.

17) PARAGRAPH HEADINGS

The paragraph headings contained in this Agreement are inserted only for convenience and they are not to be construed as part of this Agreement.

18) AUTHORIZATION AND REPRESENTATION

Each party represents to the others that it has been authorized to execute and deliver this Agreement through the persons signing on its behalf.

IN WITNESS WHEREOF, the parties have executed this Agreement in duplicate on the date first herein above written.

PSYCHOLOGICAL ASSESSMENT RESOURCES, INC.

WITNESS:_____ By:_____
R. BOB SMITH III, PH.D.
Title: CHAIRMAN AND CEO

UNIVERSITY OF WINDSOR

WITNESS:_____ By:_____
PHOENIX GILLIS

Title:_____

SIGNATURE OF PROFESSOR REQUIRED:

I hereby agree to supervise this student's use of these materials. I also certify that I am qualified to use and interpret the results of these tests as recommended in the *Standards for Educational and Psychological Testing*, and I assume full responsibility for the proper use of all materials used per this Agreement.

BY:_____

Printed Name:_____

SCHEDULE A

The Test licensed to Licensee pursuant to the above license consist of PAR's items, scoring keys, scales, profiles, standard-score conversion tables, norms tables, and related materials created, prepared, devised, and combined by PAR for the administration, scoring, reporting, and analysis of the Test, and include the words, symbols, numbers, and letters used to represent the Test. However, PAR and Licensee acknowledge and agree that Licensee may use only the PAR items and scoring information for the Test as appropriate for the Limited Purpose. The Test referred to in the body of this Agreement is defined as follows:

1) Job Stress Survey (JSS)
Test Booklet

Permission is also granted for you to include up to a total of three (3) sample items from the JSS in the appendix of your dissertation.

Vita Auctoris

Phoenix Gillis was born in 1979 in Winnipeg, Manitoba. She attended high school at Collège Jeanne-Sauvé and graduated in 1997. From there she went to the University of Manitoba where she obtained a B.A. in psychology. In 2007, she received her M.A. in clinical psychology from the University of Windsor. She completed the requirements of her Ph.D. in clinical psychology in October of 2012.